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The 21st Annual Convention American Gas Association

RESEARCH and intensified publicity for the gas industry were the two features particularly stressed at the Annual Convention of the American Gas Association held at the Hotel Pennsylvania in New York City, on October 9th to 12th. Widespread interest in the program, combined with an opportunity to visit the World's Fair resulted in the surprisingly large attendance figure of 3248.

Generally speaking, the papers and discussions constituted more of a report of progress along previously well thought out lines, than of a call for radical departure from present practice. To the extent that needs have become clearer or changed conditions have made it seem desirable was it suggested that changes be made.

The first paper on the program was by Dr. Thomas Henry Sanders, Professor of Accounting of the Harvard School of Business Administration, on "Reality in Accounting." This paper is reprinted in full elsewhere in this issue.

Thereafter, Mr. E. R. Guyer, President of the Association of Gas Appliance and Equipment Manufacturers and Mr. Conrad N. Lauer, President of the American Gas Association addressed the meeting. We are reprinting their remarks elsewhere in this issue.

In discussing "The Sales Outlook" Mr. A. F. Rice of Southern California Gas Company, detailed what has been done in the industry along promotional lines as well as what further opportunities lie ahead. As to recent accomplishment he said: "The savior of the gas industry and currently the stalwart of our domestic load, the gas range is surging forward under the impetus of the Certified Performance program. It is occupying today a satisfactory position from a volume, quality and profit standpoint; and an excellent position when a current rate of sales comparison with competition is considered. Gas Ranges are 38% ahead of last year and are growing in sales ratio over electric from 3½ to 1 in '37 to 4 to 1 now.

WALTER C. BECKJORD
President A.G.A.
Vice-President and General Manager
Columbia Gas & Electric Corporation

"To aid the possible continuance of these gains, we have our timely and unqualifiedly effective National Advertising program. It is reconditioning the public mind, that was in a state of doubt, to the reacceptance of gas service as something useful, desirable and modern."

Looking ahead into the future, Mr. Rice asked the following questions to which he himself attempted to give the answers:—

"1. Have we, currently, new uses as yet unexploited?

"2. Can we discover new physical uses or application of gas energy to aid our progress?

"3. Can we create a new Industry and Public conception of our service?

"As if to answer the first question, we discover arising among the present sturdy members of our domestic family some new uses. Some are quite practical, one or two are more valuable for promotional purposes than as actual load gainers.

"In addition to standard types, a practical, inexpensive home laundry dryer now available deserves consideration and certainly there is opportunity to gain an incidental, though small, usage of gas through the sales of gas heated ironing machines, already on the market.

"Combination appliances performing two or three of the four big jobs such as heating and water heating or cooking, heating and water heating are being manufactured and are available for exploitation.

"Not as a direct gas fired appliance, but depending on hot water and

T. J. STRICKLER
Vice President A.G.A.

about 20 pounds hydraulic pressure, (and operated without the aid of motors) there is a satisfactory dish-washing machine available. It can serve in gaining load through heating water and serve better perhaps in blocking mechanical dishwashers out of the all gas kitchens.

"Probably of no practical load value, but seething and bubbling with romance; susceptible to treatment designed to attract public interest are the gas energized thermopile units capable of operating radios and electric clocks and thermostatic controls. Public display of a radio and clock under the banner of "Gas Actuated Radio" and "Gas Actuated Clock" has indicated their value in jerking gas right up to "now"; surrounding gas with modern atmosphere.

"Summer cooling and dehumidification within the home as a market belongs to gas—because it is for gas a desirable load factor. All other phases of home air conditioning, heating, humidification, circulating and filtering is currently a gas job. Present information indicates the gas industry is ready to contend for the cooling phase of home air conditioning and will do so successfully."

To continue to compete successfully for recognition today, and tomorrow too, we must develop for our fuel itself a sales approach that will attract and be interesting to those that can and do buy our service, and which, in addition will at once impress a personal gain or benefit or respect conception of our service without need for any reasoning process being necessary to reach such conclusions.

"To achieve modern tempo in sales we must first realize ourselves that it is the qualities in gas itself that do the Four Big Jobs best; that the advantages to be gained that are inherent in gas are the grass roots of all gas service benefits. The better service gas affords justifies the employment of any honest means of assuring its use. Sales 'claims' must avoid anything doubtful; but they can use rose-tinted superlatives and yet be thoroughly honest."

Mr. Frank C. Smith, Chairman of the A. G. A. Special Committee on Fundamental Research, reported that his Committee believes that there is serious need for the prompt organization of centralized research in the gas industry.

"Briefly reviewing the findings of your Committee at its two meetings," he said, "and through its study in connection with the meetings, we have found, first, a vital and immediate need for a program of research in behalf of the gas industry; *vital,* because the life of the industry is affected, and *immediate,* because the Committee believes that steps must be taken at once if results are to be expected in time to assure continuance of the industry's profitable existence. Your Committee believes that the industry should not wait for illness to overtake it and then attempt drastic cures. Second, we have learned that there are, broadly, three methods whereby industry has conducted research programs successfully: (a) by providing research fellowships directed toward specific objectives; (b) by a research laboratory, provided, financed, manned and managed by a unit of an industry, such as the General Electric Company; and (c) by a research institute, sponsored, organized, financed and managed and operated by several or many members of an industry, responsible to a Board of Directors or Trustees representative of the industry, comprised of a selected technical personnel, under the management of a research director, with independent operation assured for a period of years.

"The prime purpose of the Research Institute of the Natural and

New A. G. A. Officers for 1939-1940

President—Walter C. Beckjord, vice-president and general manager, Columbia Gas and Electric Corp., New York, N. Y.

First Vice-President—T. J. Strickler, vice-president and general manager, Kansas City Gas Company, Kansas City, Mo.

Second Vice-President—George F. Mitchell, president, The Peoples Gas Light and Coke Company, Chicago, Ill.

Treasurer—Ernest R. Acker, president, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.

Accounting Section: Chairman—F. B. Flahive, Columbia Gas and Electric Corp., New York, N. Y. Vice-Chairman—E. N. Keller, Philadelphia Electric Co., Philadelphia, Pa.

Commercial Section: Chairman Davis M. DeBard, Stone & Webster Service Corp., New York, N. Y. Vice-Chairman—R. J. Rutherford, Worcester Gas Light Co., Worcester, Mass.

Industrial Gas Section: Chairman—Franklin T. Rainey, The Ohio Fuel Gas Co., Columbus, Ohio. Vice-Chairman—H. Carl Wolf, President, Atlanta Gas Light Co., Atlanta, Ga.

Manufacturers' Section: Chairman—E. R. Guyer, vice-president, Cribben & Sexton Co., Chicago, Ill.

Natural Gas Section: Chairman—Elmer F. Schmidt, vice-president, Lone Star Gas Company, Dallas, Texas. Vice-Chairman—Harry D. Hancock, president, Gas Advisers, Inc., New York, N. Y.

Technical Section: Chairman—A. M. Beebee, Rochester Gas and Electric Corp., Rochester, N. Y. Vice-Chairman—D. P. Hartson, Equitable Gas Company, Pittsburgh, Pa.

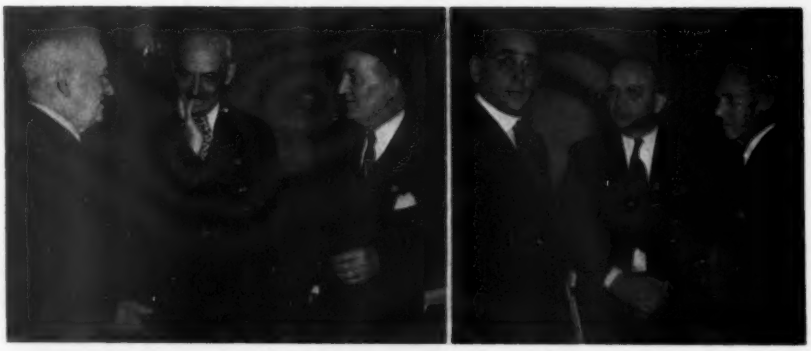
Left to right, R. J. LeBoeuf, American Gas Association Counsel, Alexander Forward, Managing Director A. G. A., Marcy L. Sperry, President Washington Gas Light Co., Washington, D. C. and Francis T. Carmody, A. G. A. Counsel.

Manufactured Gas Industry would be the conduct of fundamental research, the coordination of gas industry researches, the correlation of all results of interest to the gas business, and the education of selected students in special subjects so that, upon graduation, they would be available for employment in the industry and be especially qualified to interpret to practical application the results of research. It would be as serviceable as possible in all matters concerned with gas industry research, acting as a sort of clearing house for research information and services of all kinds, such as an actual or advisory one concerning the related information to, the feasibility of, the best laboratories for conducting, and other useful aids for, research projects contemplated by companies, gas associations, et cetera."

Mr. Herman Russell, President of the Rochester Gas and Electric Corporation and former president of the American Gas Association, gave a valuable resume of "Technical Developments and Their Effect on the Gas Industry." His address is printed in full elsewhere in this issue.

Mr. James F. Pollard, President of the Seattle Gas Company, who will be remembered as the father of the A. G. A. Advertising Program, again discussed this subject and placed before the delegates the great necessity for an enlargement in the scope of this all-important activity of the American Gas Association. "A Rock-Ribbed Foundation for Gas Industry Development," was the title of his address.

"What sort of a foundation," he asked, "has your committee to conduct national advertising laid? Is it bedded on solid rock or on shifting sand? Has it a wide enough base and sufficiency of steel reinforcing rods properly placed? Is it honestly composed of a mixture containing the proper proportions of cement, sand and gravel? The cement of confidence of all units of the industry in each other and willingness to sacrifice, if need be, immediate selfish advantage for the meeting of the broad national needs of the industry as a whole; the sand of grit and courage to cast more bread on the waters in an unshaken faith that it will come back many fold; and the gravel of rock-ribbed strength that will not easily crush and let you down. Have we created a foundation upon which we can confidently build the superstructure of a great industry effort and have we got the guts to do it? By what tests can we prove this foundation?



Along the corridors during the meeting: Left; Alanson P. Lathrop, American Light & Traction Co., N. Y. C., Herman Russell, Pres., Rochester Gas & Elec. Corp., Rochester, N. Y., Charles R. Henderson, Gen. Mgr., Michigan Consolidated Gas Co., Ann Arbor, Mich., in earnest discussion. Right: George T. Macbeth, Chief Gas Engineer of Westchester Lighting Company, Mount Vernon, N. Y., Floyd Gaunt, V. P., Reynolds Gas Regulator Co., and Charles Rainsburg, Eastern Appliance Company, Boston, Mass.

"All of these tests have been mentioned time and again in previous discussions of national advertising. Let us list them in brief summary.

"*First:* After a brief period of three years of effort the sales of ranges and water heaters are on the increase and the general consensus of opinion is that a substantial part of this growth can be attributed to the national advertising campaign.

"*Second:* It is easier to sell the idea of the all-gas home which, of course, opens the way for a great many practical bread and butter sales.

"*Third:* It has put competition in many quarters distinctly on the defensive. In fact, it and the C. P. Range promotion have driven some of the largest of them to a type of mud slinging publicity which is most regrettable.

"The other day one of my friends who is engaged in another, *very* closely allied industry and one of our keenest competitors, knowing of my deep interest in A. G. A. national advertising said to me: 'You should have been present at our convention the other day. You would have gotten a kick out of the fact that the principal topic of discussion was, 'why can't we get together and work cooperatively like our friends in the gas industry'.

"Recently Major Forward sent us all an excerpt from 'The Black Diamond,' published by the coal industry which described the National Ad on gas in the two fairs and then said, 'The American Gas Association is doing a fine and intelligent job for its members. Why can't the same thing be said of the National Coal Association and the coal carrying railroads? Maybe a glance at this ad will make the point register. This aid of modern merchandising cannot be ignored much longer by the Coal industry or the fuel of tomorrow will not be coal.'

"*Fourth:* It has done more than any other single effort to improve the public attitude toward the gas business.

"*Fifth:* It sets the stage to help the local interests involved in the gas industry. It helps the companies, the dealers, the manufacturers and others to combat the critics of the industry.

"*Sixth:* It has encouraged local companies, dealers, and others to do a stronger promotion job of their own. It keeps many dealers sold on the desirability of keeping a line of gas appliances in their business when they might otherwise be doubtful.

"*Seventh:* It inspires interest on the part of radio commentators and other commentators and inspires that editorial interest on the part of Women's magazines which is a perfectly natural thing to understand. Think well of yourself, speak well of

Clifford E. Paige, President of The Brooklyn Union Gas Company, listens in as Conrad N. Lauer, retiring President of American Gas Association, delivers his address at the Gas Industries Building, New York World's Fair on October 9th.

yourself, carry yourself with dignity before the world and the world, itself, will begin to add to your dignity.

"Eighth: It has given investment bankers a new viewpoint on the gas business, and has impressed them with its stability and aggressiveness. Witness the article recently published in 'The Index,' authoritative periodical publication of the New York Trust Company, entitled "The Gas Industry—Oldest Utility Gains New Vitality." This article says in part:

" 'A three year $1,500,000 national cooperative advertising campaign financed by more than seven hundred gas and gas and electric companies, is credited not only with helping greatly to increase sales of gas itself, but with improving both the quantity and quality of advertising by appliance manufacturers and by local companies and dealers. The success of this advertising program is attested by the announcement of a three year extension of the campaign to July, 1942 . . . the gas industry seems to have reason to face the future with confidence.'

"Ninth: It has attracted the attention of manufacturers who are interested in what happens to and in the American kitchen, for example, the manufacturers of glass-bricks, linoleum, Monel Metal and others. A new respect for the gas industry among other industries enlists new allies in its behalf.

"Tenth, and finally, and in my opinion, of the utmost importance: It has stepped up the morale of the entire industry in all of its affiliations."

Other reports and papers presented were as follows:

"Can Our Industry Advance by More Aggressive Industrial Gas Promotion?" by Mr. C. E. Bennett, Pres., The Manufacturers Light & Heat Co., Pittsburgh, Pa.

"Natural Gas in California," by Mr. W. G. Vincent, Vice President & Gen. Mgr., Pacific Gas & Electric Company.

Personnel Practices Committee by Mr. W. N. Bissell, Niagara Hudson Power Corporation.

"The Work of Our Testing Laboratories," by A. F. Briggs, Vice-President, Southern Counties Gas Company, Los Angeles, Calif.

"Your Market," by Dr. Emmett Dameron, Professor of Marketing, Ohio State University.

The Beal, Munroe and A. G. A. Medal Awards

One of the highest honors within the gift of the American Gas Association was conferred on James F. Pollard, president of the Seattle Gas Company, Seattle, Wash., at the concluding general session. Mr. Pollard received the Charles A. Munroe award for having made the most outstanding contribution of an individual toward the advancement of the gas industry. The presentation was made by the donor, Charles A. Munroe, of New York, past president of the Association.

The award was made to Mr. Pollard in recognition of having provided the drive, enthusiasm and leadership which initiated immediate and effective action leading to the establishment of the highly successful national advertising program of the American Gas Association. At the Association's 1935 convention, acting as spokesman for the Pacific Coast Gas Association, Mr. Pollard made an eloquent presentation with such intense sincerity that it engendered enthusiastic endorsement of national advertising by the convention. This

JAMES F. POLLARD

address was a powerful influence in securing financial support for the program. Later, as a member of the committee which raised the money, and of the committee which is conducting the campaign, Mr. Pollard's continued enthusiasm has been a strong factor in the program's outstanding success.

Starting in 1936, the program which Mr. Pollard initiated is now in its fourth year with an annual expenditure of $450,000. Its effectiveness is seen in the fact that the gas industry today is serving more customers than ever before and since 1938 domestic customers have been using more gas per customer, thus definitely reversing a downward trend in existence prior to the start

R. L. FLETCHER

of the program. Whereas before 1936, interest in cooperative advertising was only lukewarm, sentiment within the industry for such advertising is now stronger than ever. As a result 718 gas companies throughout the country are now contributing to the advertising fund, or 24 more companies than when the campaign started.

The Charles A. Munroe award consists of a substantial financial acknowledgment and engrossed certificate. The award committee consisted of Oscar H. Fogg, of New York City, chairman; Robert A. Hornby, San Francisco, and R. H. Hargrove, Houston.

Ralph Leslie Fletcher, vice-president and engineer of the Providence Gas Company, Providence, R. I., was awarded the American Gas Association Meritorious Service Medal for having performed the most outstanding meritorious act in the gas industry during the past year. The presentation was made by the Association's president, Conrad N. Lauer,

president of The Philadelphia Gas Works Company, Philadelphia, Pa.

Mr. Fletcher received this national honor in recognition of his bravery, intelligence, judgment and forceful leadership shown during and following the hurricane of September, 1938 which devastated a wide area of the Eastern seaboard. His prompt and effective action alleviated suffering and prevented loss of life and property at the gas plant and in the community of Providence.

In a disaster which caused a total of 680 deaths and property damage of more than four hundred million dollars in New England and New York, the Providence Gas Company was faced with an appalling situation. The company's plant was flooded to a height of six feet above yard level, while in its downtown office building water reached a level of 5 feet, 8 inches above floor level. Wind of over 100 miles velocity, coincidental with an equinoctial tide of 14 to 15 feet above mean high water level, and fire created problems requiring prompt action to prevent loss of life, preserve property and maintain gas service.

This emergency was successfully met by the loyal employees of the company, under the leadership of Mr. Fletcher, all of whom rallied unstintingly to the herculean task of keeping gas in the town. The quality of Mr. Fletcher's leadership and spirit was judged by the Association's Executive Board to have been a deciding factor in preventing an infinitely greater disaster.

The award, which consists of a gold medal, button and certificate, was made possible by the generosity of the late Walter R. Addicks, senior vice-president of the Consolidated Gas Company of New York (now Consolidated Edison Company of New York, Inc.).

Highest technical recognition in the gas industry was conferred on E. G. Hammerschmidt, chief chemist of the Texoma Natural Gas Company, Fritch, Texas. Mr. Hammerschmidt received the Beal medal for contributing the best technical paper to meetings of the Association throughout the year.

The award was presented by the donor, Ernest R. Acker, president of the Central Hudson Gas & Electric Corporation, Poughkeepsie, N. Y., representing the family of the late W. R. Beal who established the award in 1897. It consists of a bronze medal and substantial cash payment.

The paper for which Mr. Hammerschmidt was so singularly honored was entitled "Preventing and Removing Gas Hydrate Formations in Natural Gas Pipe Lines." It was presented at the annual meeting of the Association's Natural Gas Section in Tulsa, Oklahoma, May 8-11, 1939. This is the first time in the history of the award that the medal has been won by a natural gas engineer for a paper presented at a natural gas convention.

Mr. Hammerschmidt's paper is one of several contributions which he has made toward the solution of an extremely difficult technical problem

E. G. HAMMERSCHMIDT

in the transmission of natural gas at high pressures. The natural gas industry has been bothered for many years with constrictions that form in gas pipe lines during the colder seasons. The cause of freezing in natural gas pipe lines, and particularly the role of gas hydrates, was little understood until an investigation by Mr. Hammerschmidt.

In the course of his investigation, Mr. Hammerschmidt found that solid compounds known as gas hydrates had been discovered by French investigators as early as 1888. However, until his work, the existence of natural gas hydrates was not generally known. It awaited his investigation to revive a subject that had lain dormant for nearly 50 years and to bring out the importance of gas hydrates to the natural gas industry.

As soon as it was recognized that many "freezes" occurring in gas pipe lines were caused by gas hydrates and not water ice, the natural gas industry became greatly interested in further investigation of these substances. The result was a joint investigation by the United States Bureau of Mines and the American Gas Association on which several reports have been made and which is still in progress.

The immediate paper for which Mr. Hammerschmidt was honored is devoted largely to a discussion of the use of antifreeze compounds to prevent hydrate formation. This method is an alternative to the practice of installing dehumidification plants on high pressure trunk lines, which for economic reasons, is not always warranted.

J. V. Postles, of Philadelphia, is chairman of the Beal Medal Award Committee whose unanimous recommendation was approved by the Association's executive board. Other members of the committee are: F. M. Goodwin, Boston, A. M. Beebee, Rochester, R. W. Hendee, Colorado Springs, and Wm. Moeller of Los Angeles.

The Industrial Gas Exhibit at the National Metal Congress

At the 1939 National Metal Congress and Exposition, just completed at Chicago, the American Gas Association Combined Industrial Gas Exhibit involved the cooperation of 21 mid-western gas utilities and included booths of 11 leading manufacturers of gas-using equipment for the metal and metal-working industries.

The gas show was the biggest single unit (6,500 square feet) on the exposition floor, and was developed by the A.G.A. Industrial Gas Section's Committee on Displays at National Industrial Expositions (D. W. Chapman, Chairman).

Harry Swenson, Manager, Display Section, The Peoples Gas Light and Coke Company, Chicago, designed the unifying decorations. Over 25,000 metal industry men from all over the country attended the Congress.

The cooperating manufacturers, whose products were on display in the combined gas section, used much showmanship in their booth spaces. These manufacturers were: American Gas Furnace Co., Continental Industrial Engineers Co., Despatch Oven Co., Eclipse Fuel Engineering Co., Charles A. Hones, Inc., The C. M. Kemp Manufacturing Co., The Paul Maehler Co., The Partlow Corp., The Selas Co., Sellers Engineering Co., and Surface Combustion Corp.

Your Association

An Address by

Conrad N. Lauer, President American Gas Association

and President Philadelphia Gas Works Co., Philadelphia, Pa.

CONRAD N. LAUER

ONE of the most pleasant duties that falls to the lot of your presiding officer is that of bidding you welcome to the annual convention of the men and women of the gas industry of America, a country rich with liberty, peace, and a people well acquainted with the advantages of our product. The unfortunate conditions beyond our shores, in contrast to those in this country, should bring forth humility and thankfulness that they have not occurred here, and we of the gas industry extend to our contemporaries in those countries our sympathy and condolence. You men and women of the American Gas Association need not be reminded that the origin of the gas business itself was distinctly foreign as were such developments as the by-product coke oven, the waterless gas holder, the mechanical grate, the electrolux refrigerator, radiant heating, and others. Conflict and devastation in other countries retard the progress of peaceful pursuits, which places additional responsibility on us to carry on.

Your Association has now finished its twenty-first year of existence, a year of further consolidation on a firm foundation and a year of progress. As your presiding officer, I have watched with admiration the operations of this great organization, how it has made invaluable contributions to the gas business which are passed on for the benefit of the consumer. In this work there is one thing which was especially impressive—the whole-hearted cooperation of everyone concerned. The officers, staff of the Association, the Chairmen of Sections, down to the members, deserve all credit for giving their best in a manner additive to the general purpose of the Association. There is nothing more fascinating and satisfying than to have the backing of such a fine organization which performs so efficiently.

A Year of Expansion

The year just past has been one of continued expansion. There are over 300,000 more domestic gas customers served by manufactured and natural gas utilities than there were the previous year. Domestic gas sales—both manufactured and natural—indicate a favorable reaction from the industry's national advertising program, for in addition to the increase in customers there is an upturn in the per customer use of gas. The big job of replacing the 10,000,000 obsolete gas ranges supplemented by the program of a new type domestic gas range with Certified Performance Requirements is bearing fruit. Much activity with favorable results is also evident in other domestic uses of our products and we have seen increases in both the industrial and commercial parts of the gas industry. I wish to point out that in this connection these results were not forthcoming through any haphazard methods of approach. They came from a keen insight of possibilities founded on a confirmed belief in our business, careful research and planning, and mutual understanding and cooperation. But we must not rest here. We are acquainted with tools and their use in carving progress and we know there is room for further progress. Every industry and business which bids for the consumer's dollar is our competitor, and they must be met on our own ground.

The Advertising Program

The gas industry is well along in the fourth year of its national advertising program. This activity has been heartily approved and endorsed by the Association's Executive Board which has recommended that the program be continued aggressively and that operating companies make use of all tie-in opportunities to the mutual advantage of themselves and the industry.

The good results accomplished by this program are by no means confined to any one department or segment of our business. In the advertising itself we are presenting ourselves to the American public as an alert, progressive industry, proud of its fuel and its inherent and unsurpassed advantages and equally proud of the modernity and efficiency of the appliances which use that fuel.

Cooperation of Manufacturers

The manufacturers of appliances and equipment are more progressive and aggressive than ever and make adequate response to all demands from the industry for such improvements in construction, efficiencies, attractiveness and price as will furnish us the tools with which we must work and through which we must sell our product. They deserve support and the fullest encouragement so that they may continue to satisfactorily discharge their proper responsibility for the welfare of the industry.

It is a pleasure to record that a satisfactory cooperative agreement has been reached during the year between the American Gas Association and the Association of Gas Appliance and Equipment Manufacturers.

Activities of Association Laboratories

I am not going to review the record of your Association at this time. Its activities will be dealt with in papers and reports at the section meetings, which I know you will attend. There are, however, certain accomplishments and activities worthy of special mention. The demands made upon the Association Laboratories have continued to increase. Gas appliance testing is proceeding at a high rate. The most encouraging aspect in this regard is the large number of new concerns with which the Laboratories are making contacts. Since the

beginning of the current fiscal year, some forty-one new concerns have submitted equipment for test, which indicates conclusively an increasing desire on the part of manufacturers to secure the Association's approval on their products and a greater acceptance on the part of the whole industry of the value of the Laboratories' services.

Last year there was pointed out the need for an extension of facilities in the Los Angeles Laboratory. I am happy to state that on August 31 of this year a new branch was dedicated in Los Angeles and we are looking forward to completion of the building and subsequent service to the industry.

A.G.A. Headquarters Aids

I am impressed by the constant flow of inquiries to Headquarters for factual information and for advice based on experiences of others in the industry and approve the manner in which the impulse of Headquarters is to ask the men in the field who know best and formulate the reply and responses accordingly. The cheerful expression of helpfulness with which these responses are made speaks volumes for the people of the industry. Far from deploring these demands that pour in upon Headquarters by mail, telegraph, telephone and otherwise, I only wish they were doubled, so that more of our companies could make use of the facilities that they have set up and are supporting at Headquarters.

You members of this Association have been keenly aware for some time of the value and advantages of research, both pure and applied, to industry in general and the gas industry in particular. Only at the last convention there were no less than two papers read on this subject. Accordingly, a Special Committee on Research was authorized. This committee is working very hard on a method that will adequately encourage and promote scientific investigation and research.

What the investor thinks of us is of great importance to the gas industry, for upon it rests the industry's ability to borrow money for expansion and to provide a stable source of income to those who have loaned us money. It is my firm belief that the securities of the gas industry are growing in favor. One need only to note the tone of reports of security dealers and articles in the financial and general press to be convinced of this. Your Association's Statistical Bureau has been instrumental in digesting and presenting the information demonstrating the essential soundness of the industry which in no small part has contributed to this obvious favorable trend.

On Public and Employee Relations

It seems to me that this may be taken as significant of what can be achieved on a much larger scale in a much larger field. I refer to the field of public relations. There may be those among us who believe that an industry is well thought of which performs good service and that nothing more is necessary to obtain good will. We cannot overestimate the value of good service and fair rates in producing favorable public attitude. But we must realize that, as Preston Arkwright said, "We are citizens wherever we serve."

It is therefore a matter of duty, which goes beyond the mere performance of dispensing our product efficiently, to become a useful part of our community. Each and every employee should be encouraged, trained and assisted to be more likeable, more human, more willing to contribute his share toward the general welfare, and toward the conception that the gas company is a large body of neighbors eager to make the community a better place to live in. Each and everyone of you, I am sure, would like to have a neighbor like this.

Our customers, and the public generally, have definite opinions, original or formed for them, as to the place the gas utility has in the general scheme of things. And the combined efforts of technical service and human interest are required to demonstrate our companies' desire to be useful. Many of the difficulties we have encountered during the recent past would have been avoided had we utilized both these principles in cultivating a better understanding by Mr. Citizen. I earnestly recommend, wherever this neglect exists, that it be given thoughtful consideration.

One of the activities of the Association in which I have a particular interest is the work of the Committee on Personal Practices. Four years ago I gave my support to the establishment of this Committee in recognition of the desirability of having a group of trained men constantly engaged in the study of policies and practices helpful toward sound employee relations. The results of these studies have been available to the industry through printed reports. On Thursday, the Committee will hold its Fourth Annual Luncheon Conference, which many of you will attend. I hope to be among you there.

Accounting

Considerable progress has been made with the accounting problems coincident with the Federal requirement on original cost of gas plants. Mr. Nelson Lee Smith, President of the National Association of Railroad and Utilities Commissioners, delivered an outstanding and very fair address on Accounting and Property Records in the Regulation and Management of Public Utilities at the Spring Conference of the Accounting Section. Conferences were also arranged with the representatives of the N.A.R.U.C. Special Committee on Depreciation, at which there were present representatives of the Federal Power Commission, Federal Communications Commission, and Securities Exchange Commission.

The Expositions

The Golden Gate International Exposition and the New York World's Fair need no explanation as to their interest or their importance to our industry. Those of you who have been fortunate enough to visit the former are well acquainted with its glamorous features. The gas industry exhibit there was sponsored by the Pacific Coast Gas Association and financed by western gas companies and both western and national manufacturers. "Gas on Parade" is the theme, the slogan epitomizing the purpose it achieves. It is interesting to note that the only changes to the original plans and procedures have been additions and improvements made possible by the enthusiasm and support of the many manufacturers who have taken advantage of this opportunity to show their wares.

I am sure that not one of you will go home without visiting New York's World's Fair. In the Court of Flame, the four big jobs for gas are portrayed in dioramatic form. Other features of this exhibit are sure to give instructive and interesting information. But aside from this, I urge each and every one of you to use this and other exhibits in a productive way to gain ideas for application at home in our daily tasks.

And now my term of office is nearing the end. Your Association now comprises membership more representative of every branch of the gas business than ever before. I have tried to the best of my ability to further the objects of this Association and I realize more, perhaps, than any one the splendid cooperation given me. I give my thanks to all of the many who have so freely contributed their time and experience to every request I have made.

Technical Developments and Their Effect On the Gas Industry

By
Herman Russell,
President Rochester Gas and Electric Corporation
Rochester, New York

IN these sales-minded days the attention of the Industry has been focused upon ways and means of building and keeping load, and there has been a general overlooking of the important part that is being played by the technical side of the Industry in improving processes of manufacture and distribution and in developing new and improved appliances. These technical developments, which have been accomplished through research and application on the part of the engineers and chemists of our Industry, have in large measure offset increased costs in the production and distribution fields and enabled the Industry to successfully meet the competition of other heat energy sources. In order that you may have a better appreciation of these accomplishments, I shall mention briefly a few of them:

A mixed gas research carried on the past several years has developed a knowledge of the interchangeability and suitability of gases for use which is of great benefit to the Industry. This study has shown how to meet peak loads with varying kinds of gases and how to successfully use such gases as Natural Gas mixtures, oil gases, liquefied gases, etc. Many a perplexing problem has been solved as a result of this valuable work.

A study of the economics of the house heating load has been a great aid to management in determining how far to go in taking on this load and the rates required if the business is to be profitable. The study showed that distribution systems in general have a much greater capacity than they are now carrying and that substantial amounts of this load may be added at a very small added investment cost.

The control of corrosion in transmission and distribution mains has progressed so that it may now be classed as well in hand. The development of cathodic drainage and a study of pipe covering materials enables pipe lines to be laid so they will have a much longer life. The part played by nitric oxide in the gum deposits in mains has been determined, with the result that such deposits are substantially reduced.

Paper presented at Annual Convention American Gas Assn., General Session, New York, Oct. 12th, 1939.

Pipe joints new and repair of old ones is no longer a problem, thanks to the research work carried on over the past several years. Recently developed technical methods for locating underground leaks are proving a great aid in solving this troublesome and expensive problem.

Production Developments

On the production side we have witnessed the developments in the use of heavy oil in water gas operations, and the use of small sizes of coke in producers and water gas machines. A determination of the factors governing the successful mixture of coke breeze to coal prior to carbonization has resulted in substantial saving. New explosion indicators, which enable traces of gas to be quantitatively detected far below their lower explosive limits, have aided in many operating problems. Improvements and new discoveries in liquid purification have lowered costs and solved the problem of disposal of sulphur oxides. Experiments and studies in the reforming of gases have shown how almost any hydrocarbon may be converted efficiently for blending with gases already being distributed.

The development and use of new by-products from oil and coal gas operations has materially reduced production costs. Some of these by-products are wood preservatives, motor fuels, insecticides, fungicides, soil sterilizers and fertilizers, road surfacing materials, etc.

In reference to this important matter of by-products, possibly we do not go far enough. Tars and oils are sold to the chemical industry, who process them into a great variety of products. Perhaps the time has come when we should do our own processing. Natural gas offers a raw material with interesting by-product possibilities. Using coal or oil as the raw material for our manufactured gas industry leads to speculation as to what might be done with these materials if gas is treated as the by-product.

A valuable research is under way at the present time in determining the role played by organic sulphur in pipe corrosion and the importance of finding a method whereby these sulphur compounds may be cheaply removed is clearly indicated.

Natural Gas

In the natural gas branch of the Industry there are many important technical developments. The technique of transmission main design and construction has been greatly improved and the factors controlling long distance gas transmission have been developed so that gas is now transmitted over distances formerly thought to be economically impossible. The troublesome hydrates formed in transmission lines and the conditions incident to their formation are known, so that these deposits can be definitely overcome. New well gauging methods have eliminated the waste and hazard resulting from the open flow practice previously used. Methods of operating gas wells and gas pools, particularly "proration" conditions, have been developed eliminating wasteful and dangerous practices formerly existing and resulting in longer life of the reserves. The development of geological and geophysical methods has eliminated much of the hit and miss practice of well location formerly used.

Appliances

In the field of application, the development of new and the improvement of older type of appliances, domestic and industrial, is familiar to all. The gas refrigerator, the internally fired tubular gas furnace, the combination refrigerator and water heater, heater and incinerator, unit gas heaters, the C/P range—these are examples of technical progress in the development of gas burning appliances.

These are but a few of the many steps of progress which we owe the technicians of our Industry. They have been accomplished in part by individuals working separately and in part by the cooperative effort of the Industry through various committees of the Association Sections or by a committee of the Association

itself working through the Association Laboratory or independently.

Importance of Research

The time has come when these developments, directly the result of research work, must be greatly enlarged and intensified if our industry is to maintain and enhance its position in the heat energy requirements of the home and industry. Competition is keen, other sellers of energy sources are working day and night to supplant our product with their own. Their costs are coming down, their appliances are being constantly improved as to efficiency of operation and quality of resultant products. It is not enough that we have a fuel for use in the home or business place, not enough that we have a range, a water heater, a furnace, which will do the work. We must have the fuel and the appliance which will not only do the work, but do it better and cheaper than the same job can be done by any other fuel. These requirements spell a big job ahead. It cannot be done by individual effort on the part of any one company or any one manufacturer, or any group. It is a job for the entire Industry, working as a unit.

We are now face to face with the need for another major cooperative effort—a comprehensive, well organized research program. I have pointed out some of the results of the research work which has been done in the past few years. Their value is unquestioned. But progress has been much too slow. The world today is moving at a much faster pace than ever before. Competition will not wait. If the gas Industry does not quicken its stride, we shall be left far behind in the race for providing the energy requirements of the future. There is need for new uses for our products, development of valuable by-products, new processes of production, new appliances, and always improvement of the old. Why do we have in the home separate appliances for cooking, water heating, refrigeration, house heating? All transform gas into heat energy—why not one appliance for all uses? Of course, it can be done, but we need trained men working constantly to accomplish the result. Let me illustrate the necessity for a research program by a concrete example:

The Technical Section of the Association has completed a very valuable and comprehensive research showing the corrosive action resulting from sulphur compounds remaining in the gas after purification and the need for removal of these compounds. They have asked for an appropriation to carry on the study of finding a practical means for their removal. From work already done, I am convinced a process can be perfected which will not only completely remove the sulphur, but do it at less cost than present methods. The Committee have asked the Association for the sum of $10,000.00 to proceed with this research. This will be only a beginning. A sustained program is necessary if the desired result is to be obtained; otherwise, the effort may well be wasted.

The need for a well planned, adequately financed research program has been stressed before by many in the Industry. However, until this year nothing much has been done about it. Now I am glad to say that due in large measure to the initiative and driving force of Mr. F. C. Smith, a splendid start has been made. I shall not undertake to tell what has been done, for you have already heard from Mr. Smith as Chairman of the Special Committee on Fundamental Research, but I do wish to make an earnest appeal to all those in the Gas Industry to get back of the plan proposed and support it to the limit. It is significant that the need for a Gas Industry Research Program has already been recognized in Great Britain, a Gas Research Board organized and Research Director appointed. The objectives of this Board are similar to those stated in the proposed Constitution of the Research Institute. It is a coincidence that the active proponent of the English Gas Research Board was Mr. H. C. Smith—and here it is F. C. Smith. There must be something in the name "Smith" which stands for vision and progress.

In an article appearing in the August issue of the "Public Service Magazine" Riley Elgen, Chairman of the Public Utilities Commission of the District of Columbia, emphasizes the need for research and standardization in the Electric Industry. He has this to say:

"The electric light and power business is changing characteristics even faster. There should be a recognized body of highly paid experts, selected for their fitness alone, continuously engaged in the business of research into new methods, processes, materials, supplies and instrumentalities of the business. Their conclusions and recommendations ought to have the force and effect of law. It would, in my judgment, profit the electric light and power business as a whole to spend five, ten, or fifteen millions annually on such work.

"Men thus employed should be absolutely free from any pressure, financial, moral or otherwise, tending to divert their minds, thoughts and reasoning powers in channels different from those they determined upon.

"It is quite true that it is not as easy to do such things where a lot of unrelated electric light and power businesses are involved as where all are in the same family. The railroads, however, solved that problem lately."

In this same article Chairman Elgen refers to the Gas Industry as follows:

"The gas utilities have also come to a realization of the necessity of modernization of facilities, methods of conducting business, methods of serving the public and standardization of things essential to the industry. They too are making progress. A few years ago many thought the gas business a dying industry. Today there are distinct evidences to the contrary."

Surely such a statement coming from a man occupying the position that Mr. Elgen does is extremely significant and stimulating. It should not only encourage us to carry forward these cooperative efforts which the Industry has already well under way, but to immediately set in motion the machinery which has been planned by the Research Committee for the launching of the all-important Research Program. In these cooperative efforts such as the A.G.A. laboratory, the national advertising and the C/P range program which the industry has undertaken, I have been gratified at the forward looking attitude on the part of some, and keenly disappointed at the hesitation on the part of others.

True Vision Essential

There are some in the Industry, for the most part with larger interests in competing fuels, who have been slow to go along on a comprehensive program of progress, and there are others with major stakes in the Industry who have failed to appreciate the seriousness of the situation and the necessity for action. To the first group I say—look at the problem from the viewpoint of what is best for the consumer and society as a whole, and chart your course accordingly, for in the end these will prevail. To the second group I say—open your minds and let the light flow in. If all is still dark and you have lost your courage, your initiative and your faith in the Industry you are part of, turn the job over to one of your subordinates who has his future ahead of him and doesn't know the job can't be done. You have no right to hold back an Industry because you are growing old and prefer the comfort of an arm chair to the battle field of progress. The Industry is on the march—let's keep it so.

Technical Section

Elsewhere in this issue are reproduced the essential parts of the following Technical Section papers:—

"Potentialities of Future Production Costs," L. J. Willien, Public Utility Engineering & Service Corp., Chicago.

"Ten Years of Gas Dehydration," by W. L. Shively, Koppers Co.

Report of Committee on Organic Sulphur by R. E. Kruger, Rochester Gas & Electric Corp. will be published in the December issue.

A paper by Mr. Edward L. Fischer, "Load Factors and Increment Costs in Transmission and Distribution of Gas," included a detailed analysis of the investment required for pipe lines and distribution systems under various load conditions. His conclusions were as follows:

Transmission

"(1) We find that the so-called two part rate as used by many large long pipe lines does not in fact reflect costs of service except the average for the entire line, for the reason that it takes into account the load factor only and omits the volume factor completely.

"(2) The costs of supplying capacity decrease rapidly as the volume of capacity utilized increases.

"(3) The increment costs of increased capacity are very small compared to the costs of a given original capacity.

"(4) The increased costs of low load factor gas are practically offset by the small increment costs of the larger capacity required.

"(5) House heating gas can therefore be delivered at the City Gate at approximately the same cost as gas for the established high load factor uses.

"(6) The sale of house heating gas results in a by-product viz., off peak industrial gas, which may be the source of additional profit to both pipe line and distributor.

Distribution

"(1) The distribution load factor of house heating gas is very approximately the same as for the established uses of gas.

"(2) Increment costs of increased capacity are relatively the same as for pipe lines.

"(3) Where a given distribution system formerly distributing manufactured gas is utilized to distribute

F. M. GOODWIN
Chairman

natural gas its capacity to distribute heat units is automatically increased by a substantial amount at no increment cost.

"(4) The capacities of existing distribution systems can be greatly increased at small increment costs.

"(5) At the same City gate cost per M.C.F., or the same holder cost per M.C.F., therefore, heating gas, large commercial gas and industrial gas may be sold at a profit at prices well below the existing average delivered costs for established business.

"(6) The semi-high pressure distribution system results in lower capacity costs in a given area or permits distribution in low density areas at costs not exceeding those of low pressure distribution in dense areas."

"Gas at the Fairs," was the title of a joint paper presented by Mr. C. S. Goldsmith of the Brooklyn Union Gas Company, and Mr. Roscoe D. Smith of Pacific Gas & Electric Company. It described the construction of the gas transmission and distribution systems to the Fair Grounds, and the distribution of gas within the Grounds.

A motion picture and paper by Dr. Morris S. Viteles of the Philadelphia Electric Company described and illustrated the method used in selecting apprentice gas fitters.

Committee reports contained the following:

Gas Production Committee, F. B. Parke, Chairman

Carbonization and Coke
Coke Oven Refractories
Water Gas
Light Oil Scrubbing for Gum Formers
Survey of Gas, Coke and By-Product Making Properties of American Coals.
New Developments of Equipment Used in Gas Manufacture
Builders' Section

Distribution Committee, C. F. Turner, Chairman

Pipe Joints and Pipe Materials
Cast Iron Pipe Standards
Meters and Metering
Pipe Coatings and Corrosion
The Copper-Copper Sulfate Half-Cell for Measuring Potentials in the Earth.
The Cadmium-Cadmium Sulfate Half-Cell for Measuring Potentials in the Earth.

Chemical Committee, E. M. Bliss, Chairman

New Developments
Analyses and Tests
The Results of Some Corrosion Tests of Metals and Alloys in the By-Product Coke Industry.

Natural Gas Section

The Natural Gas Section meeting was held Monday morning and was devoted to a public relations forum. The meeting was presided over by T. R. Weymouth, chairman. He pointed out that the industry in spite of its splendid progress and achievement, must consider the problems that lie ahead. He further stated that the executives of the industry are now acquiring a broader conception of economics, and social and business trends.

B. C. Adams, vice-president, Gas Service Co., Kansas City, Mo., stated that a company must reflect the composite personality of its employees. He said: "Public relations is the true reflection of the integrity of an individual, or a business, or an industry, in the eyes of the public."

E. M. Tharp, vice-president and general manager, Ohio Fuel Gas Co., Columbus, O., stated: "The first steps in any public relation program must be with the members of the organization itself. It is essential that there

NORDSTROM VALVES *on Cobweb Lines*

always instantly ready to spring into action

Seldom-valved lines, "freighted with cobwebs," so-to-speak, can harbor danger and trouble. Suppose the valve is frozen tight by corrosion, erosion or otherwise —and you have to open or close it quickly. What then?

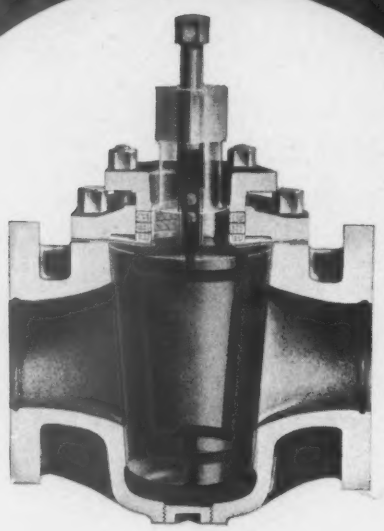
¶ No such predicament confronts you when your lines are equipped with Nordstrom Valves. They can "go for years" without turning, but are ready for instant action at any critical moment. This safety factor is particularly significant on gas lines, gasoline lines, ammonia lines, pipe lines and numerous emergency lines.

¶ *Patented "Sealdport" lubrication is the protective principle; it insures easy valve operation at all times.*

Nordstrom 16" Semi-steel Valves on a main transmission gas line

Nordstrom Valves on outgoing feeder lines in control pit of a Michigan gas company

A city distribution line, low-pressure, Nordstrom-controlled.



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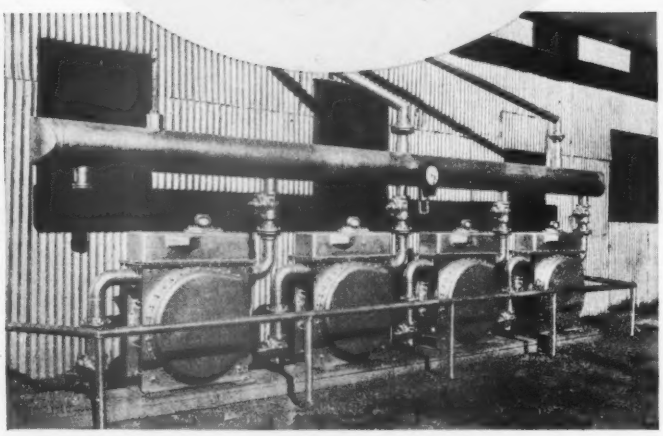

EMCO Meters and Nordstrom Valves on meter set-up.

Nordstrom Valves on industrial gas lines – burner installation

Installed at strategic points, Nordstrom Valves enable gas companies to block off definite districts almost instantly, in an emergency. The hazard of a frozen valve is eliminated. Nordstroms likewise avoid the danger of a valve failure such as broken discs and corroded stems, thus assuring uninterrupted service. A Nordstrom can always be opened regardless of unequal pressure in the line. On very low pressure lines, say 1 to 5 pounds, leakage is difficult to prevent with ordinary valves. However, Nordstroms hold any pressure from vacuum to the highest with equal facility. The plug, completely sealed with "Sealdport" lubrication, prevents leakage internally or externally.

Nordstrom Lubricated Valves as large as 30" are installed on America's principal transmission lines from gas fields.

On city distribution lines, valves up to 8" can be equipped with low or high head extensions for sub-surface operation. Locking devices are also available. Lubricated curb cocks and meter cocks are also supplied.

Gas companies find it advisable to recommend Nordstroms on industrial burner and boiler installations.

MERCO NORDSTROM VALVE CO.

A Subsidiary of PITTSBURGH EQUITABLE METER CO.

WORLD'S LARGEST MANUFACTURERS OF LUBRICATED PLUG VALVES; GASOLINE, OIL & GREASE METERS

Main Offices: 400 Lexington Ave., PITTSBURGH, PENNA.

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PRODUCTS: Nordstrom Plug Valves • Nordstrom Air, Curb and Meter Cocks • Nordstrom Valve Lubricants • EMCO Gas Meters • EMCO-McGaughy Integrators • EMCO Regulators • Pittsburgh Meters for Gasoline, Grease, Oil, Water and other Liquids • Raybould Couplings • Stupakoff Bottom Hole Gauges

NORDSTROM VALVES

WITH PATENTED "SEALDPORT" LUBRICATION

be a spirit of loyalty and enthusiasm for a company amongst its employees. They want to feel that they are an essential part of the organization, with all of its policies and programs."

R. E. Fisher, vice-president, Pacific Gas & Electric Co., San Francisco, Calif., presented a paper on "Humanizing an Organization," which was read by W. G. Vincent also vice-president of the Pacific Gas & Electric Co. in the absence of the author. He discussed the part it should play in public relations programs, said "that while public relations has been said to be an attitude of mind of management, it must be translated into a living practical service by our employees. Humanizing an organization is not an abstract subject but an operating philosophy that management must seek to apply to all of its relations with employees."

The Natural Gas Section meeting ended with a one-act play "Because of These Things," written by H. Vinton Potter and John H. Warden of Oklahoma Natural Gas Co., Tulsa, Okla., and presented by the Owen

THOMAS R. WEYMOUTH
Chairman

Players of the Brooklyn Union Gas Co., Brooklyn, N. Y. The playlet showed how *not* to conduct gas company and customer service and employee relations.

Accounting Section

The first session of the Accounting Section was held Tuesday afternoon and was presided over by H. A. Ehrmann, chairman, who reviewed the work of the committees and thanked all members of the section for their support.

Local company inspection tours took place on Wednesday and M. T. Chandler, Consolidated Edison Company of New York, invited all members of the section to visit the local gas companies, which included the Brooklyn Borough Gas Company, The Brooklyn Union Gas Company, Consolidated Edison Company, Kings County Lighting Company, New York and Richmond Gas Company, Public Service Electric and Gas Company and Westchester Lighting Company.

The report of the Customer Accounting Committee was presented by H. E. Cliff of the Public Service Electric and Gas Company, Newark, N. J.

H. C. Moore, Jr., of the New England Gas & Electric Association, presented a summary of the work of the General Accounting Committee.

The four luncheon meetings of this section on Thursday were well attended and many problems were discussed.

H. A. EHRMANN
Chairman

Roseberry Elected V.P. of Sprague Meter Co.

At the October 5 meeting of the Board of Directors of The Sprague Meter Company, Bridgeport, Connecticut, Mr. Elwood H. Roseberry was unanimously elected Vice-President. Mr. Roseberry has been serving the company as their Los Angeles Branch Manager since October, 1928, and will continue to maintain his office at Los Angeles. He is a graduate of the University of Pennsylvania Engineering School, class 1913, with a degree of B.S. in Mechanical Engineering, and is a member of the Sigma Nu National fraternity.

Prior to joining The Sprague Meter Company Mr. Roseberry was employed by the Ingersoll-Rand Company in its various shops as erecting and test engineer.

He has a wealth of friends in the gas fraternity who look with favor upon this recent promotion.

PARTLOW TEMPERATURE RECORDING CONTROLLER

Partlow Model A Temperature Recording Controller

Temperature Ranges: 0-150; 50 to 350, 100 to 450; 100 to 650 and 100 to 1000 deg. F.

This Partlow Model A Temperature Recording Controller is used to control, and at the same time record, the temperature of gas, oil, steam or electrically heated ovens, metal pots, plastic molding machines or other heated processes which operate below a temperature of 1000° F.

The red pointer is set at the temperature desired and from there on the operation is automatic.

Three types of switches, normally "on," normally "off," or single pole, double throw are available in capacities up to 500 watts A.C. 50 watts D.C. for operating solenoid valves, heating elements or relays for controlling larger loads and motors.

The same instrument, without the control switch, for temperature recording only, is also available.

Ten inch paper charts are driven by an electric or spring operated clock as specified.

The standard capillary length of the element is five feet but longer lengths can be furnished.

LIST PRICES

Model A Recording Controller, as described in Bulletin 901-A.

Wall Type .....$90.00 Flush Type $100.00

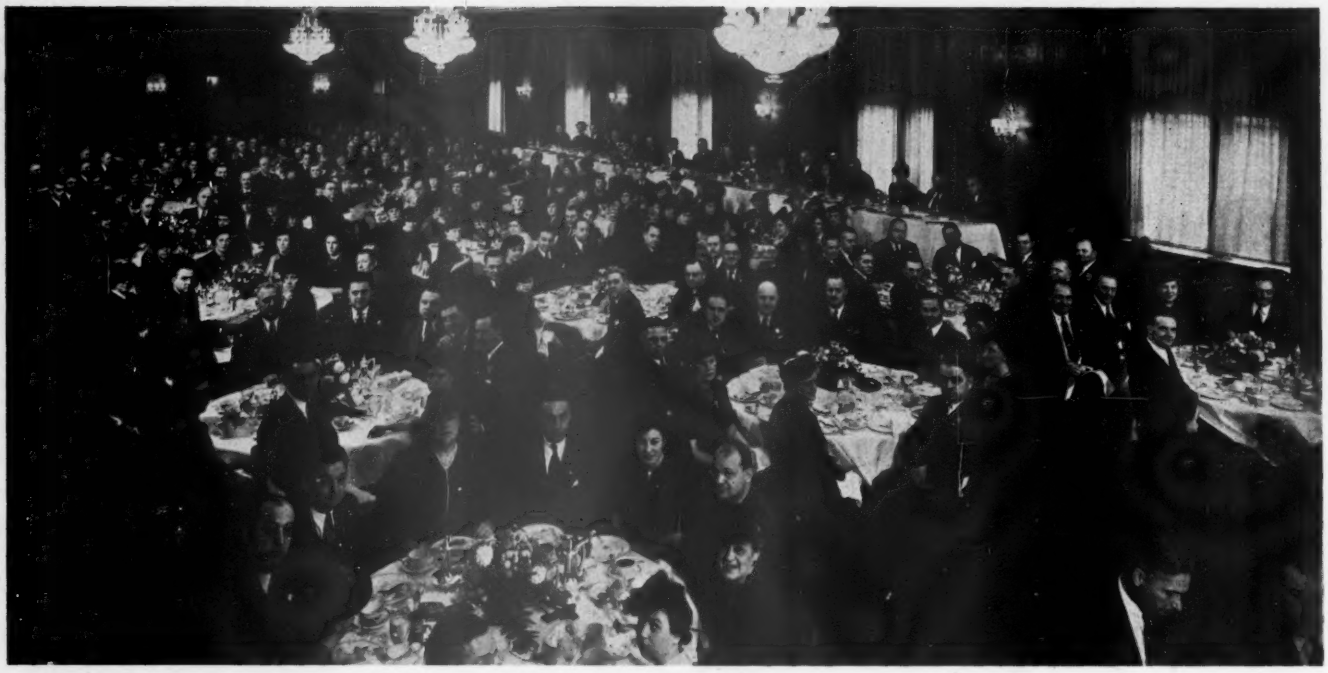
Model AP Recorder only, as described in Bulletin 900-A.

Wall Type .....$65.00 Flush Type $75.00

Send for Bulletin 900-A and 901-A.

THE PARTLOW CORPORATION, 2 Campion Road, New Hartford, N. Y.

Manufacturers of Partlow Temperature Controls, Safety Gas Valves and Gas Burning Equipment



Home Service Breakfast, Wednesday morning, October 11th, Hotel Pennsylvania, New York City, held during the annual convention of the American Gas Association.

The Home Service Breakfast

In 1925 the American Gas Association, realizing the importance of The Home Service Theme, established a Home Service Committee and lately this activity has become a recognized part of the program at each annual convention.

The Home Service Breakfast, first held in 1933, has come to be one of the outstanding features of the convention, as attested by an attendance of more than three hundred executives and department heads of utilities who participated in this interesting event.

Gladys Price, Chairman of the Home Service Committee and home service director of the Southern California Gas Company in Los Angeles, presided.

President Lauer, of the Philadelphia Gas Works Company, in his remarks, commented on the type of program presented by home service people, referring particularly to his enjoyment of the home service part in the Natural Gas Convention at Tulsa. He drew attention to the large number of men attending the breakfast and said, "I congratulate them that they are wise enough to come in here and listen to these girls on the program, because you will learn a lot that will be worthwhile, and you can take it home and use it for the benefit of your company."

Alexander Forward pointed out that because home service is the contact between the gas company and 70% of its customers, it is important that the information secured from these contacts be passed along to all the personnel of the companies, and that home service should be in a position to prepare appropriate answers and give appropriate service needed for customers.

F. X. Mettenet of The People's Gas Light and Coke Company, Chicago, emphasized the use of home service in the selling organization of the company. He pointed out the importance of proper direction, proper policies and proper coordination with all branches of the sales department.

Susy Cue, in charge of the Wayfarers' Department in John Wanamaker's New York, cooperating with Cue Magazine, and who was the final winner in a contest for the best informed person on New York, discussed the subject, "Humanizing Public Relations." Miss Cue pointed out that anyone in contact work must live up to the reputation created for her. She found out that it was her business not to disappoint anyone who came to consult her. She has discovered that in service work, at least half the job depends, quoting from her talk, "upon your own sincere desire to give your best. It isn't always easy to do. Sometimes it involves a lot of work just finding the answer.

"What we all want, of course, is a really satisfied customer. And I suppose that in service work it is harder to satisfy a customer than in any other field. But it is more interesting too, because of the personal equation that is always present and always different. Your job will be easier and more fun when you have enthusiasm for it and sympathy with your customer. It will be more profitable for your company, which, of course, is another way of saying you will build your own success in business faster. You can't be interested in people and their problems all day without carrying the graciousness and enthusiasm and wisdom back to your homes and your friends."

Miss Price pointed out the correlation between the type of work done by Susy Cue and that done by home service. She brought out the growing importance of good telephone work in home service, judged by the greatly increased number of calls going into home service departments. Miss Price continued, "We are expected to be the Susy Cues of our own gas company, wherever it may be, over the United States. It is just as important that the woman gets the right answer from the gas company as it is in this work in New York City."

Three home service directors presented two-minute talks on recent developments in home service activities. June Meyer of the Metropolitan Edison Company, Easton, Pa., discussed "Getting on to the Job,—Training Courses." Miss Meyer has been a member of the committee

which worked up a training course for home service, copies of which were made available to everyone attending the breakfast. Miss Meyer pointed out how the training course in the Metropolitan Edison Company had been used to train five people with no previous home service training to carry on a program for "increasing the load.

"A ten months study of customers with unchanged living status and where no new appliances have been installed shows an increase of 139.8 cu. ft. per customer per month. A capitulation of these results on a yearly basis shows approximately 10,000,000 cu. ft., or $14,000 gross revenue income to the company at a gross cost of only .507c per dollar."

Mrs. Lillian Dunbar of the Brockton Gas Light Company, and Chairman of the home service group in the New England Gas Association, in a talk entitled "Tests and Trials Give Us our Facts in New England," described some of the specific tests and results carried on in different companies. As requested by the chairman of the Commercial Section of that association, they are having complete reports of work done in the different companies sent to all sales managers in New England for study and use among the companies.

Mrs. Eliza Stephenson of the Jersey Central Power and Light Company discussed the subject, "Standardized Answers in Employee Classes." Mrs. Stephenson described in detail, how classes on the CP range could be given to salesmen, and pointed out that her experience has been that small groups of employees spending four or five hours in discussion, cooking and eating the food made, have given the salesmen more confidence. She said, "We are convinced, through presentations, demonstrations and comparative cooking results, our salesmen have standardized answers."

Home service was given an international touch in the presentation at the breakfast of Miss Anne Tonseth, who is one of the four home economists over this summer to operate the Snack Bar at the Norwegian Pavilion at the New York World's Fair. Miss Tonseth is home service director in the Bergen Gas Works in Bergen, Norway. The group was much interested to hear how home service work was done abroad. She pointed out that in Bergen they carry some American gas ranges, and that home service work is carried on very similarly to the work in this country, with calls in the homes of customers, but that they have particular reference to demonstration activities.

Industrial Gas Sessions

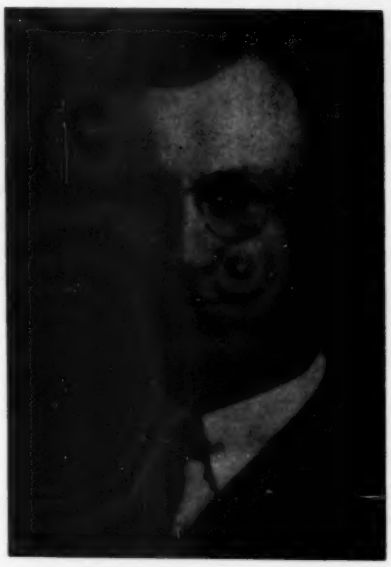
The Industrial Gas Section got under way Tuesday, Oct 10 at a luncheon at the Pennsylvania Hotel and was presided over by Frank H. Trembly, Jr., Chairman of the Industrial Gas Section. Charles G. Young, Manager Springfield Gas Light Co., Springfield, Mass., was the speaker. "For years" said Mr. Young, "the domestic part of our business has received the spotlight of our attention, but the time is here when attention should be directed to the non-residential use of gas—the industrial and commercial load—which has enjoyed such amazing development in the past ten years."

In analyzing the cooperative steps which should be taken by industrial gas sales departments and management as industry and business step-up to imminent higher levels of activity, Mr. Young advised, "The market for new equipment will be greater than ever, and progress in manufacturing methods, together with promotion of new industries, will present opportunities for new applications of our fuel. It is entirely possible that loads which heretofore have been considered unattainable for economic reasons may develop surprising volume. Some of the development work may possibly require studies involving considerable expense. If the need arises, management should cooperate in sharing a reasonable proportion of this cost." Speaking of oil, electric and other competition for industrial loads, he continued, "It is apparent that if we are to meet this competition, management must obtain from you industrial representatives a clear picture of the situation, and depend on information *you* supply in determining policies, rates, permanency of possible new loads, and methods of procedure."

Mr. Young's conclusion was, "Your problems at this point become those of management, perhaps too long and too far removed from industrial fuel problems in the effort to develop the domestic load. . . . In short, you are more than ever justified in expecting closer cooperation and backing from management in the forthcoming period of expansion."

Metal Field Demands Best in Fueling

At the first business session following the luncheon, Clayton S. Cronkright, Public Service Electric and Gas Co., Newark, and Chairman of the Section's Ferrous Metals Committee, credited "the culmination of a definitely planned program extending over a long period of time" as the reason "Why Gas is Forging Ahead In The Metals Field."



FRANK H. TREMBLY
Chairman

Said he, "Modern methods are necessary to save time and expense in manufacture, and to reduce ultimate unit costs so that products may be enjoyed by a maximum of people. As a result industry demands closely controlled production processes to meet exacting tolerances, and thus requires the *best* in fuel application and machinery." Other reasons he cited for our success in the metal field included: (1) the availability of gas-using equipment which has kept pace with, even gone ahead of, general industrial development, (2) aggressive industrial gas utilization research, (3) national advertising on a grand scale, (4) effective publicity in behalf of industrial gas, (5) effective displays at leading national industrial expositions, (6) utilization of company windows for local industrial gas displays, (7) competent sales personnel which maintains close personal contact with customers and prospects, and (8) enlightened engineering service in connection with each sale.

Improved Gas Applications Numerous—and Significant

Frederic O. Hess, President, The Selas Company, Philadelphia, discussed "Building The Industrial Load by Improved Applications" by describing new principles of gas application in a number of key fields

THE REPUBLIC EXHAUSTER

designed to solve your venting problems

The Republic Exhauster was especially designed to handle flue products from gas appliances.

All factors entering into this problem have been carefully considered as will be evident from some of the special features listed below:

CAPACITY: 75 CFM at ½" static pressure.

INSTALLATION: No special brackets required. Entire mechanism suspended from small floor flange and adjustable as to height.

MOTOR: Republic ventilated design with special provision for keeping condensate out of bearings.

HOUSING: A rugged casting of corrosion resistant aluminum alloy. A tapped opening is provided for condensate drainage.

Write or wire for special bulletin and prices.

AUTOGAS CORPORATION

2258 Diversey Ave. **Chicago, Ill.**

General Sales Agent

REPUBLIC HEATERS SALES CO., CHICAGO

FULTON DUPLEX SENSITIVE GAS GOVERNOR

for

High Inlet Pressure
Low Outlet Pressure

Simple, Accurate—Durable with Manufactured Gas

With two diaphragms, the linkage of one so arranged as to multiply its power, the regulator shown is highly sensitive and accurate. Pressures up to 50 lbs. can be reduced to one ounce and kept constant. Unaffected by natural or manufactured gas, regulator gives long service without repairs. Write for new Catalog of C-F Regulators.

The CHAPLIN-FULTON MFG. CO.

28-40 PENN AVE. CF PITTSBURGH, PA.

CRUSE-KEMPER COMPANY

STEEL PLATE CONSTRUCTION

AMBLER, PA.

GAS HOLDERS

HOLDER INSPECTION

RIVETED OR WELDED FABRICATION & ERECTION

TANKS, BINS, FLUES PURIFIERS, WELDINGS

GAS SERVICE STOPS

SINCE 1869 Hays has built dependable brass products for the Gas Industry. Standard, Special Weight, Heavy Pattern and High Pressure Stops to meet all requirements are manufactured by Hays in a full range of sizes. Write for Catalog No. 4 today.

HAYS MANUFACTURING CO. ERIE, PA.

in which outstanding strides have recently been made, among them the baking of new industrial finishes, the fire polishing of glass, the radiant heating of metal parts assembled within incandescent lamp bulbs, assembling and sealing paper milk bottles, the heat treatment of steel cylinders, the annealing of stainless steel, the glazing of ceramic products by open firing, the concentrated spot heating of semi-finished metal products for "localized" working, the brazing of turbine blades, the superheating of steam (particularly for the brewing industry), and the heat-peeling of vegetables. Mr. Hess hewed to specific case histories to demonstrate the practicability of the ingenious new gas applications he was considering, but emphasized that profitable adaptations of these new heating principles could be, and should be, made in numerous other fields.

How to Sell—Tips from A Veteran

The next paper, "Successful Methods of Selling Standard Rated Industrial Gas Furnaces," was presented by C. B. Phillips, Vice-President, Surface Combustion Corporation—and the methods and plans he presented were all "garnered from proven experiences, gained in association with industrial gas men, and ones which have repeatedly produced good results." After tracing the successive steps in a sample sale involving no short-cuts, Mr. Phillips made it plain that no two customers are alike and it is necessary to adapt the dominant sales appeal and procedure to the man being approached. Effective sales appeals for various types of prospects were given.

"One type of prospect often overlooked is the present gas user," noted Mr. Phillips, "and to feel that because a plant uses gas entirely and pays the bill every month it does not need any attention, is a very poor and sometimes tragic policy." It was also emphasized that most efficient and successful salesmanship results only when "the utility and the manufacturer sit on the same side of the desk" in analyzing and exploiting markets.

The remaining time of the Tuesday afternoon session was spent in a presentation of "*Your* Industrial and Commercial Gas Publicity—As A Sales Tool." Harry A. Sutton, Chairman, Publicity Committee introduced Harry W. Smith, Jr., Director, Industrial Gas Publicity, who made the dramatic presentation based upon the past 12 months' publicity progress.

Selling with Publicity—A New Slant

Likening sales effort to carpentry, Mr. Smith drew an analogy between the various sales tools at the disposal of Industrial Gas Men and various woodworking tools actually displayed on the speaker's table. Publicity became the "rough-cut saw of industrial and commercial gas sales" because it "reaches your prospect and influences him favorably toward gas before you and your direct selling effort get at him."

To show the scope of the 10,692 column-inches of publicity secured by the Industrial Section in 92 leading trade and business publications (in 28 distinct fields) since October, 1938, Mr. Smith paused while the actual pages from the publicity scrapbook were hung at the side of the hall. The display formed a solid wall 50 feet long by 6 feet deep. In addition, six basic methods employed in A.G.A. publicity work "to make *your* publicity *sales* publicity, rather than mere article writing or press agentry" were outlined, and examples (with exhibits) were given to show how the individual non-residential gas salesman can get "plus" value out of the program by "putting publicity to work" on specific sales projects.

On Wednesday, Industrial Gas stated its case before the entire industry, as well as treated its own special problems within the fraternity by sectional meeting. C. E. Bennett, President, The Manufacturers Light Heat and Power Company, Pittsburgh, represented the Industrial Gas Section on the floor of the morning General Session in the Main Ballroom, and answered an emphatic "yes" to the question "Can Our Industry Advance By More Aggressive Industrial Gas Promotion?"

After luncheon, Franklin T. Rainey, Vice-Chairman, took over the gavel for the final series of papers. Lloyd C. Ginn, Sales Promotion Manager, American Stove Company, interpreting "The Utility and The Manufacturer—As A Team For Increased Sales."

"We have already gone a long way (in the matter of cooperation between utility and manufacturer)," said Mr. Ginn, "but much remains to be done. We need most of all a definitely organized program." His suggestion was a 12-point program embracing: (1) cooperative dealer support, (2) complete market surveys, (3) closer contact between utility men and manufacturers' local representatives. (4) cooperative dealer meetings, (5) joint prospect demonstrations, (6) frequent service meetings attended by both utility and manufacturer service men, (7) cooperation in developing sales aids (at least to extent of interchanging plans and ideas), (8) joint effort towards appliance development, (9) consultation to eliminate price cutting tactics, (10) combined presentations at national expositions, (11) mutual investigations of competitive attacks, and (12) coordination of publication advertising, direct mail, displays, etc.

The report of the Nominating Committee was made by Hale A. Clark, Michigan Consolidated Gas Company, Chairman, and unanimous ballots were cast with the result that Franklin T. Rainey, The Ohio Fuel Gas Company, Columbus, Ohio, assumed the role of Chairman of the Section for the coming year, and H. Carl Wolf, President, Atlanta Gas Light Co., Atlanta, Georgia, was elected Vice-Chairman.

Frank H. Trembly, 1939 Chairman of the Section, was called upon to give his interpretation of "The Industrial Gas Section's Responsibility to the Gas Industry."

The characteristics of the industrial gas load were discussed, it being emphasized that "the problem of industrial and commercial gas sales is a specialty all its own and distinctly different from the sale of gas to other classes of customers." The "impressive position of the industrial and commercial load within the gas industry" was accounted for, as well as status of our fuel in comparison with competition. Mr. Trembly indicated that "for the year 1938 the non-residential gas send-out was 28 per cent ahead of 1929, compared to an increase in electric power for industrial and commercial purposes of only 13 per cent over 1929."

The Hotel Man Has a Tip for Us

The next speaker was Ray J. Kief, Food and Beverage Manager of the Hotel Lexington, New York. His "Hotel Man's View of Gas Service" was full of practical selling helps. Definite recommendations to commercial gas salesmen in behalf of hotel men were: (1) regular monthly inspections of hotel kitchen gas equipment by competent utility representatives, (2) the prompt bringing to the attention of hotelmen excessive gas consumption resulting from maladjusted, worn-out, or faulty equipment, (3) equipment modernization proposals (particularly for smaller establishments) and the offering of deferred payment plans, and (4) encouragement of manufacturers toward developing new equipment specifically designed to add to the efficiency *and comfort* of kitchen employees.

His address appears on page 50.

Commercial Section

THE first Commercial Section meeting was held Tuesday afternoon following a luncheon and was presided over by Chairman F. X. Mettenet, Vice-President of Peoples Gas Light & Coke Company, Chicago, Ill.

Talking on "What of Tomorrow," Hugh Cuthrell, Vice-President of The Brooklyn Union Gas Company said that the gas industry's participation in the World's Fair has provided benefits which form the basis for prospective business in each of the fields of tomorrow. Mr. Cuthrell stated:

"Gas has gained recognition as one of the nation's great contributors to the high standard of American life, and the industry must take advantage of this recognition."

F. M. Banks, Vice President of Southern California Gas Company, Los Angeles, in a paper entitled, "Symposium on Gas in New Homes," urged the industry to make the public look upon gas service as among the fashionable and modern services of the day. People are today thinking of appliances in terms of vogue, style and modernity.

J. P. Leinroth, Public Service Electric and Gas Company, Newark, N. J., said:

"With the present trend in building toward low-price homes with emphasis upon kitchens, bathrooms and automatic heat, there is a set-up almost made to order for the gas industry. All indications favor the small home, many without basements, which we must be prepared to heat with circulators and similar appliances rather than central heating plants."

The tendency of architects and builders to stress their own pet ideas in home building without sound provision for heating and water heating, was the subject of a talk by H. Vinton Potter, of the Oklahoma Natural Gas Company, Tulsa. Mr. Potter suggested the industry attempt to teach them to appreciate the necessity for adequate house heating and water heating.

A. W. Lundstrum, Ebasco Services, Inc., New York, presented a paper entitled, "Market Possibilities and Equipment Available for Summer Air Conditioning by Gas." His figures were startling. He stated that the potential summer air conditioning load of the natural gas industry was estimated at about 350 billion cubic feet, and the manufactured gas industry's potential was estimated at some 700 billion cubic feet. This increase in gas consumption for air conditioning would represent an increase in revenues to the gas utilities of over $200,000,000.

F. X. METTENET
Chairman

E. F. Jeffe, Vice President, Consolidated Edison Company of New York, Inc., presented a paper entitled, "Are We Selling Appliances or Gas?" He suggested that if the industry adopts the policy of lower prices to produce large volume, it will be following the time-proven trend of large volume sales, lower manufacturing, distribution and sales costs with more profit and increasing benefits to the consumer.

The Wednesday afternoon session was led by Davis M. DeBard, Vice President, Stone and Webster Corp., New York.

R. J. Rutherford, Vice President, Worcester Gas Light Company, Worcester, Mass., asked utility men and manufacturers to answer two questions, namely: First, what can the manufacturer do to help the utility in furthering promotion of gas refrigeration, and second, what can the utility do to help the manufacturer in this respect. Mr. Rutherford said that the most important problem is the replacement market, which includes the problem of trade-ins.

In selling water heating, the first step suggested by B. A. Seiple, Vice President, Jersey Central Power & Light Company, Asbury Park, N. J., is creation of dissatisfaction through showing the consuming public the inadequacy of their present method of obtaining hot water. Next, to convince the prospective customer that automatic gas water heating service is the most economical way to obtain the service they want.

Gladys Price, Southern California Gas Company, Los Angeles, in a paper entitled, "In the Mirror of Customer Opinion," stated that as home service sees the customer, she wants facts, figures and truth presented in a way to appeal to her and fit her needs. Miss Price urged the utility companies to look upon their home service departments as the mirror of customer opinion and to consult it for sales trends as a check on service being rendered customers.

Helen Smith, Rochester Gas & Electric Corporation, Rochester, N. Y., presented a paper entitled, "Statistically Speaking."

R. S. Agee, Sales Promotion Manager, Association of Gas Appliance and Equipment Manufacturers, New York, spoke on the subject, "Objections and Refutations."

Refrigeration Plans

The 1940 Refrigeration Committee of the American Gas Association met on October 11 to study the position of gas refrigeration and to decide on activities for the coming year.

It was revealed that gas refrigeration today offers the industry an opportunity not only of benefit on all fronts in the coming year, but to set the stage for solid fundamental growth and to contribute materially to its increased future prosperity.

Bernard T. Franck, Chairman of the 1940 Committee and vice president in charge of sales and service for the Milwaukee Gas Light Company, said that his new Committee had laid plans to develop sales activity on refrigeration which call for a vigorous twelve-month's selling program starting on January 1, 1940.

Appointment of Mr. Franck as Chairman of the 1940 Refrigeration Committee was made by Davis M. De Bard, Chairman of the Commercial Section. Mr. Franck is recognized as one of the foremost exponents of gas refrigerator merchandising.

Association of Gas Appliance and Equipment Manufacturers Holds Annual Meeting

CP Range Meeting Follows

"There are impounded today in America vast resources of capital the use of which can be had by American industry provided in return for that use industry shall accept its fair responsibility in the promotion of the general welfare of the country," E. R. Guyer, of Chicago, retiring president of the Association of Gas Appliance and Equipment Manufacturers, declared when he opened the organization's fourth annual meeting at the Hotel Roosevelt in New York City on October 9th.

Mr. Guyer said that the problem before industry today "is the responsibility of tapping those vast resources of capital." He stated that the gas industry had tried to accept its share of that responsibility by promoting for the American people the greater use of, at the most economical cost for, gas as a national fuel.

The principal event at the gathering of gas appliance manufacturers from all parts of the country was the election of officers and directors of the Association for the fiscal year 1939-40. Frank H. Adams, vice-president and general manager of the Surface Combustion Corp., of Toledo, Ohio, was elected the new president. Mr. Adams is a director of the American Gas Association, past president of the Toledo Rotary, and a trustee of the Toledo Chamber of Commerce.

A. P. Brill, president, Ruud Manufacturing Co., Pittsburgh, was elected vice-president of the Association. John A. Fry, president, Detroit-Michigan Stove Co., Detroit, was elected treasurer.

Newly elected to the Association's board of directors were: Louis Ruthenburg, president, Servel, Inc., Evansville, Ind.; L. R. Mendelson, president, Hotstream Heater Co., Cleveland; E. C. Adams, president, Adams Brothers Manufacturing Co., Pittsburgh; Walter L. Seelbach, secretary and treasurer, Forest City Foundries Co., Cleveland; J. C. Diehl, chief engineer, American Meter Co., Erie, Pa., and W. A. Lean, general sales manager, Wilcolator Co., Newark, N. J.

Re-elected to membership on the board were: F. E. Sellman, of New York, vice-president, Servel, Inc., who for the past four years has been chairman of the Association's Gas Refrigerator Division and who has now become chairman of the Association's Advisory Council; W. E. Derwent, vice-president, George D. Roper Corp., Rockford, Ill.; F. J. Fieser, American Radiator & Standard Sanitary Corp., New York; S. E. Little, vice-president, American Stove Co., Cleveland; W. R. Smith, vice-president, Continental Water Heater Co., Los Angeles; R. G. Logue, vice-president, Ward Heater Co., Los Angeles; R. L. O'Brien, president, Detroit Brass & Malleable Works, Detroit, and H. N. Ramsey, president Welsbach Co., Gloucester City, N. J.

Accepting the presidency of the Association, Mr. Adams cited the remarkable extension of gas service in the United States during the past ten years referring to it as "a notable service of a great industry during a difficult national period." He said that while gas service has been extended at lower costs to the users, there has been continued improvement in the standard of service and the equipment through which this service is delivered in the home and to industry.

Mr. Adams declared that gas appliance manufacturers are constantly striving for improvements in their products through research and development work. He pointed out that gas appliances of ten years ago are about as obsolete as ten year old automobiles.

Quite irrespective of the present European war, the United States appeared ready for a period of industrial prosperity which the war may have set in motion, George E. Frazer, of Chicago, told the Association's members in expressing the opinion that better business lies in taking advantage of the potential domestic replacement market rather than for industry to rely too much on export business. He said that they may find it a paying proposition to spend advertising and sales moneys on their quality goods for this domestic replacement business.

FRANK H. ADAMS
President A.G.A.E.M.

Reviewing the Association's activities during the past year, Mr. Guyer named as most significant the broadening in scope of sales promotional efforts. He stated that a recently concluded fourth national sales promotion campaign conducted by the Association's Gas Water Heater Division demonstrated "what actually can be accomplished by co-operative efforts." He said that "the sales of gas water heaters have maintained an enviable record during the years that the Division's promotional campaigns have been in effect."

"Through the intensive and intelligent use of advertising and promotion the 'CP' Gas Range has now been accepted, in the short space of a year, as the most superior cooking appliance on the market," Mr. Guyer continued. He said that the "CP" program for 1939 included four nationwide promotions: Spring, Summer, Fall and Holiday campaigns. The first two campaigns, he went on, have been concluded with "a maximum of success." The Fall campaign was recently inaugurated. Mr. Guyer pointed out that emphasis was being placed on the replacement of obsolete ranges, the creation of new markets, and the supplying of new homes.

The 1940 CP Range Campaign

A $110,000 budget for 1940 national sales promotion of "CP" Gas Ranges, which is double the 1939 appropriation, has been approved by the twenty-five gas range manufacturers in the Association now producing "CP" Ranges. This was announced following a joint meeting of the Domestic Gas Range Committee of the Association with a similar committee of the American Gas Association held October 12th.

W. E. Derwent, vice-president of the George D. Roper Corp., of Rockford, Ill., who was re-elected chairman of the Domestic Gas Range Division of the Appliance Association has announced the appointment of Lloyd C. Ginn, sales promotion manager of the American Stove Co., Cleveland, as chairman of the "CP" Gas Range Sales Management Committee which will help direct the sales promotion program. George Scoffield, general sales manager of the Republic Light, Heat & Power Co., Buffalo, N. Y., is the newly elected chairman of the Domestic Gas Range Committee of the American Gas Association.

In addition to enlarging the appropriation for 1940 "CP" range promotion, the Association will double its field contact force to develop sales training and educational programs and to assist dealers and utilities in formulating local campaigns throughout the year. Emphasis during the 1940 endeavor will be placed on getting local sales outlets in all parts of the United States to increase their respective newspaper advertising efforts and sales promotion activities for the "CP" product.

The scope of next year's sales promotion effort will be divided into two major campaigns: Spring (March, April, May and June) and a Fall campaign (September, October, November and December). Mailing pieces will be distributed throughout the campaigns to 2,500 key utility men, 1,000 "CP" range manufacturers and field men, and 16,500 leading dealer outlets. These elaborate mailing pieces will show current market potentiality and profit possibilities, will offer dealer cooperation and campaign plans, and will include concrete tie-in and sales training material.

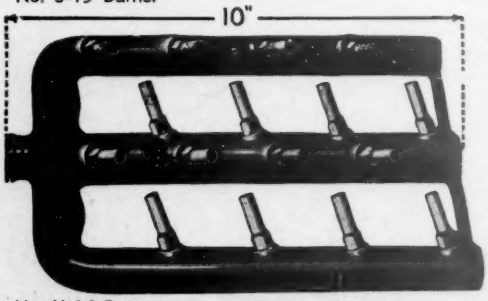
The 1940 "CP" Gas Range promotion program will tie-in directly with the $1,500,000 national advertising program of the American Gas Association in fourteen consumer magazines and twenty-three trade publications.

A feature of the program is the "CP" Range Club in which there are already enrolled 10,000 leading range salesmen. Through this club, which has its own official news organ, valuable awards are periodically presented to qualifying salesmen.

To augment the field staff of the Appliance Association the American Gas Association recently appointed eight regional managers. These promotion supervisors, enlisted from utility companies, will cover the entire United States on dealer and sales education. Assisting the regional manager in "CP" promotion are forty-eight state managers.

BARBER BURNERS
for All Gas Appliances

No. S-15 Burner



No. U-16 Burner

Give Your Appliance the Sales Advantage of BARBER Burner Equipment!

Efficiency! Economy! Performance!

On Natural, Artificial, or Butane Gas

Send for Catalog 38A —showing all types of Appliance Burners, Conversion Burners, Regulators.

THE BARBER GAS BURNER CO.
3704 Superior Ave. Cleveland, Ohio

BARBER Automatic JET GAS BURNERS

TITAN WATER HEATER CONTROLS

AGA Approved
TITAN Temperature and Pressure Relief Valve

This device is installed on the hot water outlet in the tank directly in the flow of water. Action, as a result, is unfailing and positive, there being no dead pockets to prevent proper functioning of relief valve.

Pressure relief is obtained through a spring-loaded valve which opens when the pressure reaches a predetermined point. Should the water become overheated to 200° F, a fusible disc melts and lets the water escape thereby preventing a further increase in temperature.

The Titan Relief Valve serves as a coupling connected in the line thereby eliminating the necessity and expense of a tee fitting. To replace fusible disc, it is not necessary to disassemble valves or piping in any way.

Design for application to storage or range boilers. Prevents corrosion, scalding and explosion.

Catalog and full information upon request.

The Titan Valve & Manufacturing Company

Thermostats • Safety Pilots • Relief Valves • Safetystats
9913 Elk Avenue Cleveland, Ohio

Third Annual Feast of Gild of Ancient Supplers

The third annual Feast of the Gild of Ancient Supplers of Gas Appliances, Skills, Gins, Accessories and Substances at the Hotel Pennsylvania, Tuesday evening, October 10, was a most enjoyable event of Convention Week attended by nearly 300 members and invited guests who have come to anticipate this function as among the most pleasurable occurring during the national meeting.

Following enactment of the customary ritual observed at Gild Feasts, tribute was paid the memory of the late William P. Hutchinson, charter member, and chairman of the Sprague Meter Company, who died last May.

Honorary membership was conferred on Herman Russell, president of the Rochester (N. Y.) Gas & Electric Corp. and former A. G. A. president, in recognition of his being "the personification of an ideal utility executive" and of accomplishments which "made the gas industry appreciate itself and the general public appreciate the gas industry."

Mr. Russell's contribution to the industry was characterized as follows:

"Mr. Russell has headed many important committees of the Association, having difficult assignments. Time will not permit a full recital of them but a few will be cited.

"The 1935 House Heating and Air Conditioning Committee, of which he was chairman, produced the report 'Economics of Gas House Heating' which developed the fact that large heating loads could be profitably handled by the gas industry.

"He was chairman of the committee appointed to raise the necessary funds to start the national advertising program and after a very difficult several months secured sufficient members to contribute, enabling the program to proceed.

"During the period 1936 and 1937 he developed a series of studies on the economics of gas and electricity which crystallized the point that the 'all electric kitchen' idea was not to the interest of the customer or the electric company and was profitable only at rates averaging double the cost of gas for such service and that equal cost to the customer was ruinous to the electric company."

Bronze statuette of the "Gas House Terrier," which is the Gild award

In addition to the Gild's membership card and emblem presented to him Mr. Russell was given an "Oscar", a sculptured bronze ornament bearing a representation of the "Gas House Terrier." Mr. Russell graciously acknowledged the tribute paid him following which it was announced that an identical "Oscar" would be presented to Raymond M. Conner, director of the A. G. A. Laboratories, at the next day's General Session in commendation of Mr. Conner's exemplary work in guiding the appliance research of the industry.

Billy B. Van as the featured speaker of the evening, stressed the importance of salesmanship and brought a most stimulating message to those concerned with the development and promotion of business in an era of economic upheaval. Pointing out that perseverance, salesmanship,and the ability to adapt oneself and one's business to existing conditions, Mr. Van, who is mayor of Newport, N. H., cited the manner in which his city has achieved the distinction of having no relief rolls by revising industrial activities to fill the gap caused by the depression. Adaptation of existing plants to new

industries obviated serious unemployment and the stamina and self-reliance developed in meeting this crisis stood the city in good stead in emergencies caused by flood and hurricane.

The Ben Yost Singers, one of the best known male choruses in this country, provided an excellent musical program. Group singing throughout the evening enlivened the gathering and brought it to a close with Auld Lang Syne.

At a business session the following officers were elected for the next two years: Mayor, W. S. Guitteau; Senior Warden, C. E. Bartlett; Clerk, J. H. Moore; Keeper of the Treasure, J. A. Mulcare; Aldermen, E. C. Sorby, W. G. Gribbel, J. A. Messenger. Wardens will be appointed at the next meeting of the Great Council.

McCarter Medal Presentations

By

Thomas N. McCarter

Public Service Electric & Gas Co.
Newark, N. J.

In establishing the award which bears my name sixteen years ago I hoped that it would encourage our people to save human lives by learning the Schafer prone pressure method of resuscitation. I like to think that the purpose of the McCarter Medal has been realized. In any case, since its establishment 638 McCarter Medals and Certificates, 36 Bars and Certificates and 238 Certificates of Assistance have been awarded. These figures are concrete evidence that since 1923 the stay on this earth of 674 people has been extended because of the knowledge and action of gas men and women. It is naturally a matter of great pride to me that the award is the official recognition of the gas industry for the highest form of service any man can render, the saving of human lives. In these days when nations are bending every effort to devise new and more terrible ways and means to destroy life, it seems somewhat refreshing to participate in a movement, small in comparison though it may be, the principal object of which is to save life.

For the first time since the McCarter Medal was offered in 1923 it goes to a man who revived two people simultaneously asphyxiated with gas. For that extraordinary feat I am indeed gratified at this opportunity to present both a medal and bar and a certificate to Mr. Kenneth H. Dinneen of the Central New York Power Corporation, Syracuse, N. Y. Mr. Dinneen, please accept my congratulations upon your alertness and efficiency in recognizing the opportunity to save two human lives.

It is my pleasure at this time to present medals to two employees of my own company whose performance entailed heroism as well as a knowledge of the Schafer prone pressure method of resuscitation. On July 3 last, while working in Bloomfield, New Jersey, their attention was called to the odor of gas coming from a house in the neighborhood. On investigation all doors were found to be locked. Opening a cellar window the cellar was found to be full of gas; climbing in to shut off the meter two people were found overcome with gas, a young woman and a man. After shutting off the gas the victims were lifted out of the window and resuscitation was successfully applied. A letter addressed to the company from the chief of the Bloomfield Police Department says in part: "I feel that this was more than the ordinary call of duty for these men not only took the people out of the cellar but helped with artificial respiration and they were of great assistance to the police. I personally congratulated these men at headquarters and want you to know that men of this type are a great credit to your company."

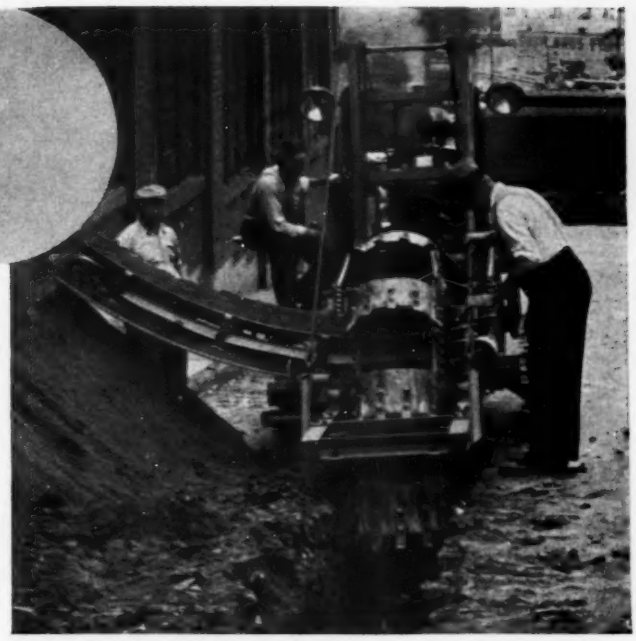
It is indeed a proud moment for me to present to Mr. Robert Humbert and to Mr. George A. Bennett, employees of the Public Service Electric and Gas Company, these McCarter Medals and Certificates, the gas industry's recognition of a brave and noble deed.

I will now present McCarter Medals individually to the other men assembled here, each of whom, may I remind you, saved a life by the Schafer prone pressure method of resuscitation. Will you please refrain from applause until all the recipients receive their medals?

Ivan C. Wright, Northern States Power Company, Minneapolis, Minn. John A. Geck, Charles J. Mihok and William H. Wentzheimer, The Philadelphia Gas Works Company, Philadelphia, Pa. Joseph F. Wagner, Harold E. Jameson, Howard Miller, John Jasiecki, Hendrick F. Steenhuizen and Julius R. Mehring, The Brooklyn Union Gas Company, Brooklyn, N. Y.

Thomas N. McCarter, Chairman of the Board of Public Service Electric and Gas Company, Newark, N. J., donor of the nationally known McCarter medals for life saving, photographed with 13 medal winners, who were honored at the annual convention of the American Gas Association, held in New York City, October 9-12. In the photograph are, left to right: John Jasiecki, Brooklyn Union Gas Company, Brooklyn, N. Y.; John A. Geck, Philadelphia Gas Works Company, Joseph F. Wagner, Brooklyn Union Gas Company, Mr. McCarter, Harold E. Jameson, Howard Miller and Hendrick F. Steenhuizen, all of the Brooklyn Union Gas Company, William H. Wentzheimer, Philadelphia Gas Works Company, and Charles J. Mihok of the same company, Kenneth H. Dinneen of the Central New York Power Corporation, Syracuse, N. Y., George A. Bennett, Public Service Electric and Gas Company, Julius R. Mehring, Brooklyn Union Gas Company, and Robert Humbert, Public Service Electric and Gas Company.

You'll Be the Gainer with "CLEVELANDS" On Your Trenching Jobs



BECAUSE in "Clevelands" you have equipment that exactly fits your work, whether the trench is for long main lines through tough soil and difficult terrain or for distribution trench in the confined areas of city and suburb.

Compact and streamlined for light weight—rugged, dependable and supreme in construction, Clevelands are the kind of equipment you need to get the pipe in the ground quickly and economically.

Hair-trigger mobility makes real savings available on more jobs—anywhere in your system. Put "Clevelands" to work immediately and

Write for detailed specifications today.

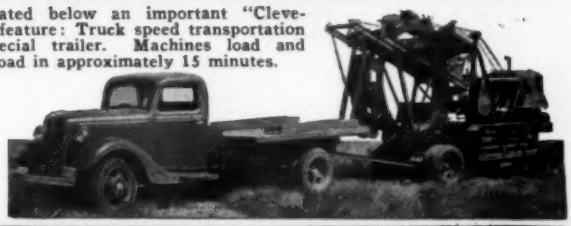
THE CLEVELAND TRENCHER COMPANY

"Pioneer of the Small Trencher"

20100 St. Clair Ave. Cleveland, Ohio

WATCH YOUR COSTS GO DOWN

Illustrated below an important "Cleveland" feature: Truck speed transportation on special trailer. Machines load and unload in approximately 15 minutes.



"CLEVELANDS" *Save More* — Because they *Do More*

CURRAN-KNOWLES GAS AND COKE OVENS

At low initial cost per M of capacity, Curran-Knowles Ovens give

1. A high yield of superior quality coke for water gas generator fuel, and for domestic and industrial use. Small size coal screenings can be utilized.
2. A high yield of tar of excellent quality.
3. A uniform quality of gas which meets Commission requirements.

They successfully carbonize low or high volatile, swelling or non-swelling coals.

They are built to suit any situation—large or small and the simplicity of design makes for low operating cost.

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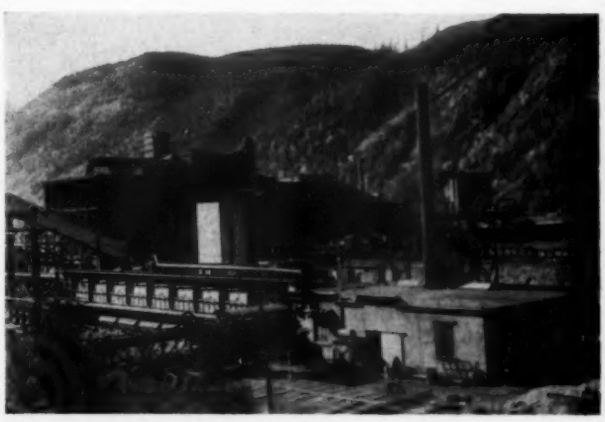

In the foreground is installation of recently completed Curran-Knowles ovens at Michel, B. C., to carbonize expanding coal.

Six years in successful operation. Three new plants completed during the past year.

Write for descriptive bulletins showing plants and products.

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Ten Years of Gas Dehydration

By
W. L. Shively
Koppers Company
Pittsburgh, Pa.

THE advantages of gas dehydration are now generally well known and conceded, but a brief review may nevertheless be in order. Fundamentally, the advantage is that the removal of water vapor from the gas can be accomplished at the plant at a lower total cost and with less detriment to service than if wet gas is distributed and the water is condensed in the distribution system. Drip pumping, "freeze-ups" and trapped mains and services are practically eliminated. The corrosion of mains, services, and meters caused by oxygen, carbon dioxide, traces of hydrogen sulfide, hydrocyanic acid, and ammonia in the gas in the presence of water is greatly reduced. A striking improvement in meter conditions is noted.

The partial dehydration of natural gas is finding wide application as a means of preventing line restrictions, and stoppage due to ice or hydrate formation. Freezing of regulators is reduced and there is no further necessity of blowing drips so that gas losses from this practice are eliminated. Apparently interior corrosion of high-pressure mains tends to be severe in the presence of liquid water even when the natural gas contains only traces of oxygen or H_2S[3,4]. Travel of these corrosion products will then give rise to serious dust problems. In long lines carrying large volumes of gas at high pressure the roughening of the interior of the line due to corrosion will give rise to a material increase in transmission cost. All of these difficulties can be very substantially reduced or eliminated by partial dehydration of the gas before it enters the transmission system.

Description of Process

The most commonly used system for the partial dehydration of manufactured gas is one in which the gas is scrubbed with a hygroscopic liquid, usually a concentrated solution of calcium chloride. A flow sheet typical of such a plant is shown in Fig. 1.

The gas enters the bottom and passes upward through the scrubber. In the lower section the water vapor is removed from the gas by the hygroscopic solution. In the upper section of the scrubber the gas is scrubbed with oil to remove any entrained particles of the hygroscopic solution and to effect naphthalene removal. The absorption of water vapor heats and dilutes the hygroscopic solution. Cooling is accomplished by passing the solution through a bank of coils over the outside of which cooling water flows. To remove the absorbed water from the hygroscopic liquor and maintain it at an effective concentration, part of it is passed to a special evaporator. A portion of the spent oil from the oil scrubbing system is removed periodically and replaced with fresh oil to keep naphthalene removal at the desired point.

Dew-Point Required

In practice, the amount of dehydration required is determined by the temperatures prevailing in the distribution or transmission system.

Results Secured in Practice

A few years ago a survey was made of a number of dehydration plants which had then been operating from two to seven years.

The results secured in the distribution systems in all cases equalled or exceeded expectations. The first and most obvious effect was the great reduction in the labor and expense of drip pumping. In one case where formerly the full time of one man and one truck were required, a single day each month now suffices, and what drip is found is largely oil. Another plant reported the reduction in drip pumping as 99%. In one territory where frequent settlement of the ground resulted from undermining of their system by coal mines, thousands of dollars were formerly spent annually in digging up and re-laying mains. With gas dehydration, deviation of the mains from grade is of no importance and the money saved on this one item also has fully justified the installation of the process.

"Freeze-ups" show in all cases an even greater percentage of reduction than drip pumping. Typical is the ratio of 1000 per winter before dehydration to two the winter before the survey was made, and twenty-four the preceding winter in which temperatures of 26° F. below zero were reached.

Improvement in meter conditions is usually responsible for largest return on the investment in a dehydration plant but it is unfortunately not possible to give specific figures at this time.

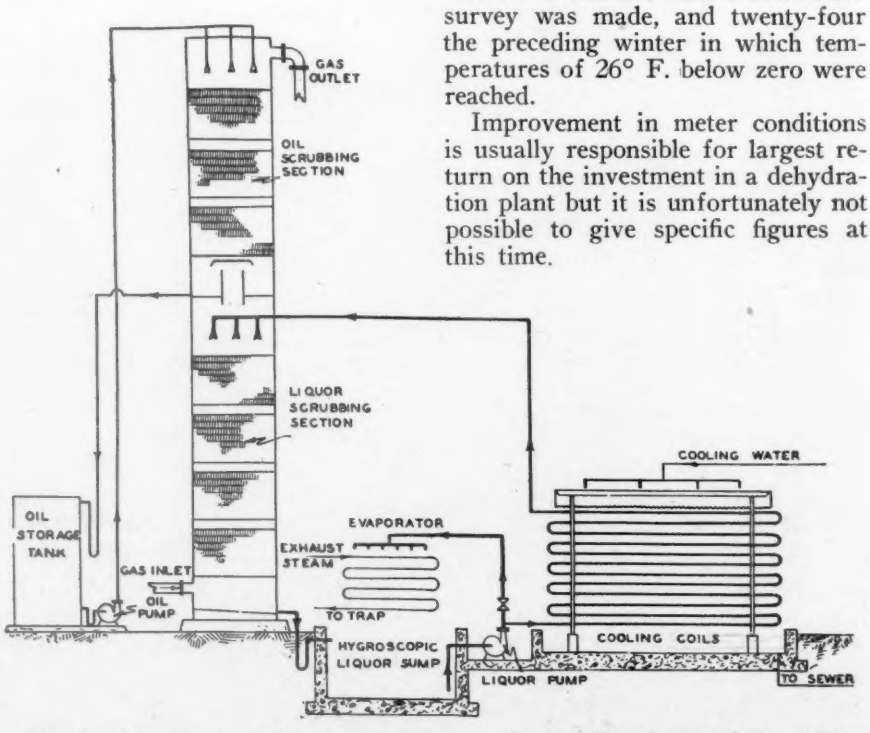


Fig. 1. Flow sheet of dehydration system combined with oil recirculation type napthalene removal.

Abstract of paper presented at Technical Section, American Gas Association Convention, New York, October 9-12, 1939.

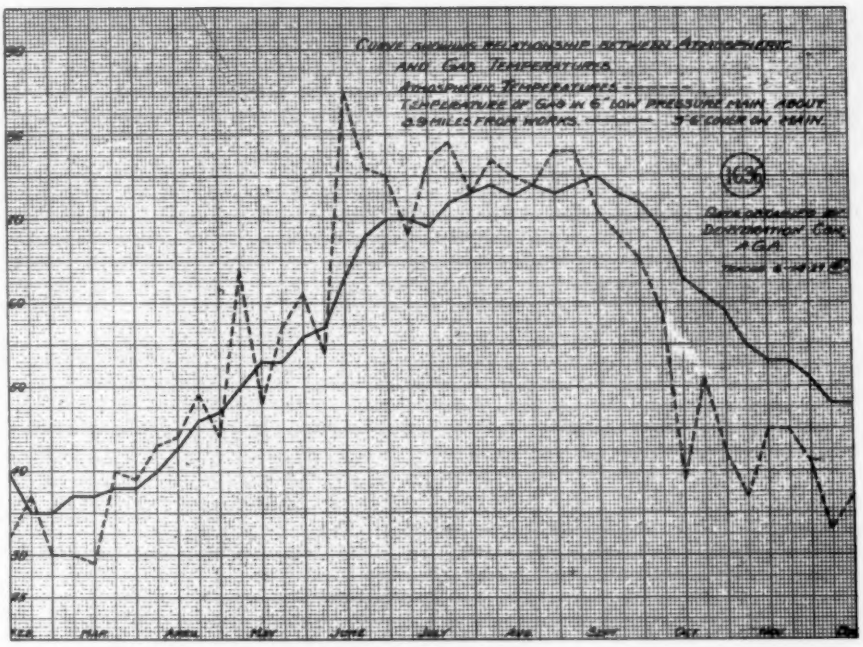
Vacuum Cooling System

Desiring to alleviate an irritating gum condition by preventing the deposition of both water and drip-oil condensate in their distribution system, the Central Hudson Gas and Electric Corporation has installed at its Poughkeepsie, New York, plant a novel type of super-cooling plant. The original function of this apparatus was to cool the gas (which is carburetted water-gas) at the holder inlet five to ten degrees Fahrenheit below the low temperature of the distribution system and thus not only partially dehydrate the gas, but remove oil condensates as well, which latter may have contributed to gum deposits.

The description of this process is briefly as follows: Three multiple-jet steam vacuum-pumps exhaust the vapor and gases from a chest or chamber containing the cooling water of the system. The steam of these jet pumps is condensed by a common barometric condenser. The high vacuum created over the water in the chest causes it to boil, this boiling absorbing heat and chilling the water. The chilled water is circulated through a gas cooler of the indirect type provided with finned tubes to give a large heat transfer. The water from the gas cooler returns to the vacuum chest through a closed pumping system so that the energy required for circulation is merely the friction head of the system. The water, oily condensate, naphthalene, etc., condensed from the gas flows through a seal into the drip-oil separator.

Data for typical operating conditions during July and August and as computed for full load conditions are shown in the table.

Low operating costs make this system attractive where there is an adequate volume of cheap cooling water for the steam condensers. These use about as much water per hour as a brine dehydration system would require for 24 hours' operation; but where this water can be secured at pumping costs only this is not a burdensome requirement. The operation of the plant is simple and the maintenance has been quite low. Use of three jet pumps in parallel provides the necessary flexibility to meet varying load conditions. In the winter time it is not necessary to operate the plant, since river water is available for cooling at the necessary low temperatures. This plant was installed in October, 1934.



Dehydration of Natural Gas—General

It is a striking commentary on the changes that time and understanding bring, to find that the greatest application of gas dehydration in the past decade has been in the natural-gas industry. At the beginning of this period considerable difficulty was being experienced from the adverse effects of dry natural gas when introduced into systems formerly used on wet manufactured gas. These difficulties have long since been resolved by partial dehydration of the gas and the employment of oil-fog lubrication of the mains. Dehydration is applied to natural gas prior to its transmission and for substantially the same reasons that the process was applied to manufactured gas, i.e., prevention of freeze-ups due to ice (or hydrate) formation, prevention of corrosion, subsequent dust trouble, elimination of drip blowing, and reduction of line capacity due to water or dust accumulation. The special conditions that are not paralleled in the manu-

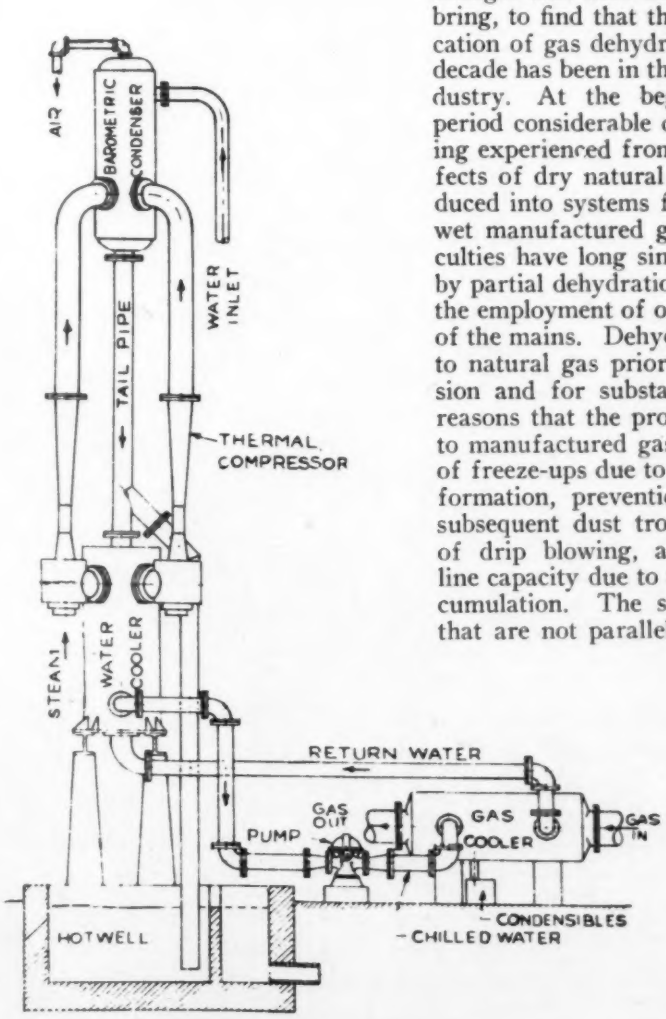


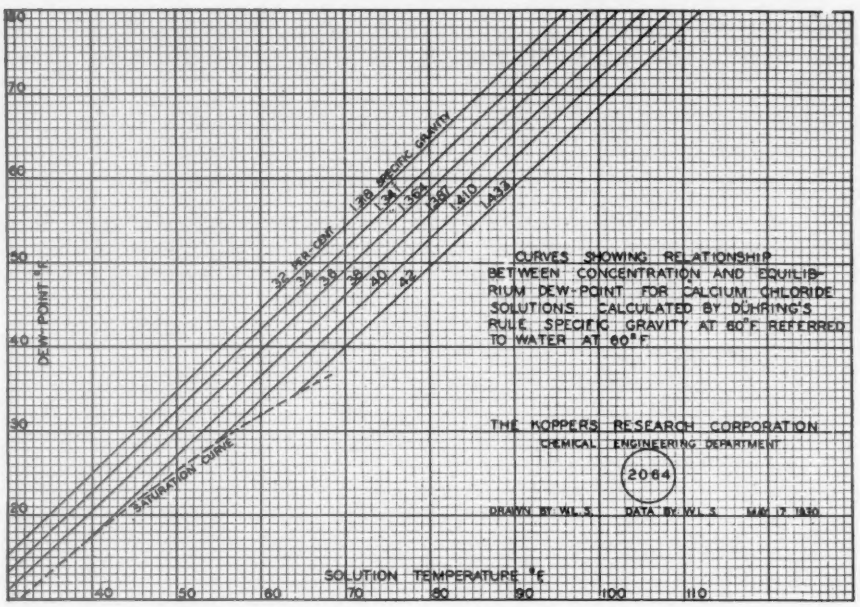
Fig. 2. Diagram of Vacuum Cooling Dehydration System.

factured gas industry are the pressures employed, use of steel mains and hydrate formation.

Processes Used

There is a wide diversity in the types of plants employed for this duty. Most systems contact the gas with a hygroscopic liquid which may be solutions of calcium chloride, diethylene glycol, glycerine, or a mixed solution of calcium choride and glycerin in water. Refrigeration-type plants employ the conventional ammonia-compression type units, or may utilize propane or butane as the refrigerant.

The greatest number of plants of any given type are those employing diethylene glycol as the hygroscopic agent. At present there are sixteen commercial plants employing this agent for the dehydration of natural gas.



OPERATING COSTS: PARTIAL DEHYDRATION MANUFACTURED GAS: BRINE SYSTEM

	Plant "A"	*Plant "B"*	*Plant "C"*
Capacity in million cu. ft. per day	5	7.2	10.0
Steam: cents per MCF gas treated	0.138	0.213	0.202
Power: cents per MCF gas treated	(steam driven pumps)	0.061	0.091
Labor: cents per MCF gas treated	0.068	....	0.073
Maintenance: cents per MCF gas treated	0.040	0.086	0.036
Cooling Water: cents per MCF gas treated	0.164	0.022	0.016
Calcium Chloride: cents per MCF gas treated	0.060	0.019	0.062
Total Costs per MCF gas	0.470 cents	0.401 cents	0.48 cents

OPERATING DATA: SUPER-COOLING SYSTEM:

Central Hudson Gas and Electric Corp., Poughkeepsie, New York

Item	*July and August*	*Full Load Conditions*
Hourly gas rate	183 MCF	400 MCF
Temperatures °F.		
Gas to super-cooler	80	90
Gas from super-cooler	58	50
Chilled water	57.5	45
Return water	62	50
Refrigeration, tons per 24 hr.	24	95
Power, KWH		
Chilled water pump	8	8
Condenser water pump	7	13
Steam, pounds per MCF gas	6.2	5.5

OPERATING COSTS: SUPER-COOLING SYSTEM:

Central Hudson Gas and Electric Corp. (July-August Operation)
Poughkeepsie, New York

Power:	Chilled water pump 8 kw. Condenser water pump 7 kw. 15 kw. total	
	$15 \times 24 \times 0.4c$	$ 1.44 per day
Steam:	6.2 lbs. per MCF gas $\frac{6.2 \times 183 \times 24 \times 30c}{1000}$	$ 8.17 per day
Labor:	Estimated at	$ 1.30 per day
Maintenance:	Estimated at	$ .50 per day
	Total daily operating costs	$11.41 per day

Costs per MCF gas treated $\frac{1141c}{183 \times 24} = 0.26c$ per MCF

The following operating data are representative:

Pressures—Pounds Gage

Gas to Contactor	339
Gas out Contactor	337
Vent Tank	30
Still	7.5
Boiler Steam	134

Temperatures—Degrees F

Gas to Contactor	73
Gas from Contactor	74
Solution from Contactor	73
Solution to Exchangers	58
Solution from Exchangers to Still	160
Solution from Still to Exchangers	328
Solution to Coolers	230
Solution to Contactor	84
Solution from Coolers	86
Atmosphere	33

General Data

Dew point gas before dehydration 73° F.
Dew point gas after dehydration 23° F.
Water removed per million cu. ft. 35 lbs.
Gas treated—
16.4 lbs. Abs. Pressure ...41,008 MCF
Sp. Gr. Glycol to Contactor:
@ 68° F. ..... .94
Sp. Gr. Glycol from Contactor:
@ 68° F. ..... .93
Solution Pumping Rate .....8 GPM

Conclusions

The partial dehydration of manufactured gas has been practiced by a number of companies for periods of from six to ten years. The experience of these companies shows the process to have achieved the objectives originally visualized, i.e., elimination of drip pumping, "freeze-ups" and water stoppages, reduction in corrosion of mains and services, and substantial improvement in meter conditions. Operating costs have been found to be slightly less than one-half cent per M cu. ft. gas

(Concluded on page 60)

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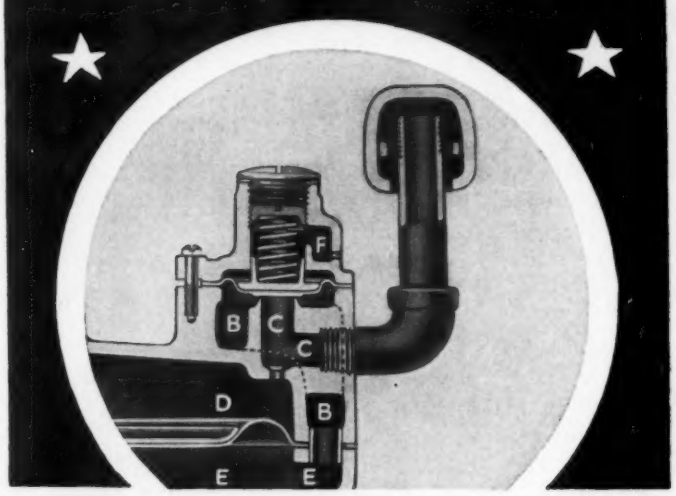

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Gas Control Since 1892

Potentialities of Future Gas Production Costs

by

Leon J. Willien,

Chief Gas Engineer
Public Utility Engineering & Service Corp.
Chicago, Ill.

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LEON J. WILLIEN

In an endeavor to determine whether there is some possible method of manufacturing gas at a lower cost than existing standard methods, an academic study was made of the possibilities of the following methods:

I. The complete gasification of coal in a water gas machine recovering all of the volatile constituents of the coal.

II. Preheating the generator and carburetor air to 1000° F.

III. Using oxygen in a water gas machine by

a. Substituting oxygen for the generator and carburetor air in normal operation.

b. Using oxygen and steam in a producer and enriching the gas with butane to the required B.t.u.

IV. Synthesis of gaseous hydrocarbons at high pressures.

V. Combining blue gas operation with oil cracking.

The object of this study was to calculate the operating results that may be obtained and determine whether an appreciable reduction in production costs is possible.

I. Complete Gasification of Coal

In 1926 the A.G.A. Bituminous Coal Committee made a study of the coal gas produced and retained in the finished gas when using bituminous coal as generator fuel in a water gas machine. A summary of this report is as follows:

1. The volume of coal gas retained in the finished gas is 58% of the total coal gas evolved.

2. 8.4% of the B.t.u. in the finished gas is due to coal gas.

The committee's study was based upon using 100% coal with a production of 5.25 cu.ft. of 570 B.t.u. coal gas per pound of coal. These results were obtained with the coal when carbonized in retorts.

From the data given in the committee's report I have calculated the following:

1. That a ton of coal used in a water gas machine making a 530 B.t.u. carburetted water gas produces the following:

14,300 cu. ft. of 72 B.t.u. blow run and air purge gas
6,100 cu. ft. of 570 B.t.u. coal gas
40,500 cu. ft. of 273 B.t.u. blue gas

60,900 cu. ft. of 255 B.t.u. mixed gas

2. That 60,900 cu.ft. of 255 B.t.u. gas enriched with gas oil (66 cu.ft. of 1,500 B.t.u. oil gas per gallon) will produce 77,500 cu.ft. of 530 B.t.u. finished gas. This will require 243 gallons of gas oil.

If the volatile constituents of the coal are evolved and recovered without being subjected to a temperature higher than that at which they are evolved, the maximum enrichment from the coal gas should be obtained. According to a paper by A. W. Warner in the 1923 A.G.A. Proceedings (page 928), a ton of coal carbonized under such conditions should produce 8,000 cu.ft. of 700 B.t.u. gas and 23 gallons of tar.

The following shows the estimated results that may be obtained with 100% bituminous coal in water gas operation if—

A. All of the coal gas evolved is recovered as 8,000 cu.ft. of 700 B.t.u. per ton of coal.

B. All of the coal gas evolved is recovered as 10,500 cu.ft. of 570 B.t.u. per ton of coal.

C. 58% of the coal gas evolved is recovered as 6,100 cu.ft. of 570 B.t.u. per ton of coal.

	A	*B*	*C*
Fuel/M cu. ft.....	25.4	24.5	25.8
Oils Gals/M cu. ft..	3.08	3.01	3.21
Tar produced Gals./ M cu. ft.....	.75	.57	.53

Tar production was estimated at 15% of the oil used for water gas as tar, 23 gallons of coal tar per ton of coal used in A, 10 gallons in B, and 4 gallons in C.

With coal at $6.00 per ton, oil at 5 cents per gallon and tar at 4 cents per gallon, the estimated net fuel and oil cost per M cu.ft. will be—

	A	*B*	*C*
Fuel	$.0762	$.0735	$.0774
Oil	.1540	.1505	.1605
Total fuel and oil..	.2302	.2240	.2379
Tar Credit	.0300	.0228	.0212
Net fuel and oil....	$.2002	$.2012	$.2167

Conclusions

1. That the complete gasification of coal in a water gas machine with the recovery of all the volatile constituents in the coal should reduce gas production costs about 1.5 cents per M.

2. That to recover all the volatile constituents from coal when used in a water gas machine would require structural changes.

3. That it is doubtful whether a saving of 1.5 cents per M is sufficient to justify the cost of the necessary structural changes.

4. That there would be insufficient heat in the hot gases to carbonize coal in a carbonizing chamber.

II. Preheating Generator and Carburetor Air to 1000° F.

Utilizing the sensible heat in the waste gases from coal gas plants to preheat the secondary air used for combustion has been standard prac-

Abstract of paper presented at American Gas Association Annual Convention, New York, October 9-12, 1939.

tice for years. Many steam plants in electric generating stations preheat the air used for combustion under the boilers by passing it through a heat exchanger in which the sensible heat in the flue gases is recovered. Such operation in steam electric plants reduces fuel consumption about 5%.

In the production of carburetted water gas it is common practice to pass the hot blast gases through a waste heat boiler and utilize the sensible heat for generating steam. The possibilities or economics of utilizing the sensible in the blast gas to preheat the generator and carburetor air has never been considered.

Conclusions

1. That preheating the generator and carburetor air to 1000° F. should show a saving of approximately 6.95 lbs. of generator fuel per M of 520 B.t.u.

2. That with coke at $7.00 per ton this saving is equivalent to 2.42 cents per M.

3. That to preheat the generator and carburetor air to 1000° F. with the sensible heat in the stack gases would require a heat exchanger that operates at an efficiency of 72%.

4. That the same amount of heat recovered in a waste heat boiler at the same efficiency will generate 27.3 lbs. steam at 100 lbs. gauge pressure. With steam at 40 cents per 1000 lbs. this represents a saving of 1.1 cents per M of 520 B.t.u. gas.

5. That preheating the generator and carburetor air appears to have possibilities of a greater reduction in gas production costs than a waste heat boiler.

III. Conclusions as to Use of Oxygen in a Water Gas Machine

1. That to use oxygen as a substitute for generator and carburetor air in a water gas machine it must be available at a price less than 4.25 cents per M or $1.02 per ton in order to show a saving in gas production costs over present operation.

2. That to use oxygen and steam in a producer and enriching the resultant gas with butane it must be available at a price less than 14.6 cents per M or $3.50 per ton.

IV. Synthesis of Gaseous Hydrocarbons at High Pressure.

The Institution of Gas Engineers in England is the same as the American Gas Association in America.

Considerable research work is conducted by Leeds University under the direction of a Research Committee of the Institution. The results of this research are reported at a Research meeting held every autumn.

Conclusions

1. That if hydrogen in blue gas is used for hydrogenation, a maximum of 465 B.t.u. gas would be obtained.

2. That the total fuel required would be 56.87 lbs. per M.

3. That the fuel cost would be greater than fuel and oil cost with present operation.

4. That oil is a cheaper enricher than coke or coal hydrogenated in the manner outlined.

V. Combining Blue Gas Operation with Oil Cracking

E. A. Dieterle and I presented a paper on this at the Gas Production and Chemical Conference in 1937. The proposed operation consisted in utilizing the heat developed during the blow period in an oil cracking plant, crack the oil into gasoline, oil gas and heavy residuum oil or coke. Sell the gasoline and residuum oil and use the oil gas for enriching the blue gas. If coke is made, use it for generator fuel.

Conclusions

1. That the lowest net fuel and oil cost is obtained with 25 API fuel oil using steam during the blow and cold enrichment of the blue gas. With such operation the residual credits are a trifle more than the cost of the oil cracked plus the cost of operating the cracking plant. This is comparable to the average coal gas operation in which the coke, tar and ammonia credits equal the cost of the coal carbonized. The net holder cost of gas with such operation should be approximately 10 cents per M.
2. That the most economical operation is that in which steam is used during the blow.
3. That the 6.2 lbs. petroleum coke produced per M cu.ft. of gas made compares with approximately 75 lbs. of coke made per M cu.ft in a coke oven underfired with producer gas.

By going into oil cracking the gas industry would not flood the gasoline market but it would offer a potential outlet for some 50 million barrels of fuel oil per year for the oil industry. The production of residual fuel oil in 1937 was 300 million barrels.

General Summary and Conclusions

1. That complete gasification of coal in a water gas machine recovering all of the volatile constituents offers little or no possibilities of reducing gas production costs.

2. That preheating generator and carburetor air to 1000° F. should save approximately 6.95 lbs. of generator fuel per M. The saving would be about 2.4 cents per M. This compares with a saving of about 1.1 cents per M if the same heat is recovered in a waste heat boiler.

3. That the use of oxygen has no place in the picture. To break even with present practice, oxygen must be available at considerably lower cost than its present cost.

4. That synthesis of gaseous hydrocarbons at high pressures utilizing hydrogen in blue gas seems to require too much total fuel. It is cheaper to enrich with oil than hydrocarbon gases synthesized from coal.

5. That the thermal efficiency of present methods used for manufacturing gas—coal gas and carburetted water gas—is so high that there is little possibility of materially reducing gas production costs.

6. That fundamentally the two major processes used today in the manufacture of gas are the same as they were when originally developed. Changes and improvements have been made in the design of the equipment but not in the principles underlying the processes.

7. That a material reduction in gas production costs is only possible in the production of valuable by-products.

8. That cracking Bunker C oil into gasoline, oil gas and coke in a regular cracking plant, using the coke for generator fuel, reforming the oil gas and selling the gasoline seems to offer possibilities of a 35 to 40% reduction in the production cost of carburetted water gas.

9. That the maximum amount of gasoline that could be produced by the gas industry by such operation would be a small percentage of the total consumption. It should have no effect on the gasoline market.

10. That cracking Bunker C oil as proposed should provide a potential market for approximately 50 million barrels of fuel oil per year. This oil would be used in fairly uniform amounts throughout the year.

Reality in Accounting

By

T. H. Sanders

Prof. of Accounting, Graduate School of Business Administration
Harvard University

THE gentlemen who did me the honor to ask me to appear before you went even further; they invited me to speak to you with candor, and to tell you what is wrong with public utilities generally and with their accounting in particular. I appreciate the opportunity and propose to avail myself of it. But you will breathe more freely if I say at once that I have no new charges to bring against the public utilities; what is more I do not believe all the old ones. Moreover, the position of detached and independent observer and critic, which I venture to hope is attributed to me, should work both ways. Such a detached person should be capable not only of joining in the hue and cry against the utilities, but also of turning upon the critics themselves when they appear to be going too far. In this vein it seems fair to say that no misdeeds of the utilities that I have heard about can be more improper than the spending of public funds in competitive building for the express purpose of destroying the property which government is supposed to protect. And if, as this condition implies, there be conflicts between the executive or administrative arm of our governments and the utility companies, the courts are the rightful umpires of such conflicts. It is not proper, in a policy where an independent judiciary is regarded as an essential element in government, for the administrative side to be so busy in setting up its own agencies, called quasi-judicial, but too much subject to administrative pressure, if not to administrative control, and to make these agencies the judges of the administration's own disputes. When so notable a liberal as Mr. Adolph Berle raises his voice against such conditions, it may be accepted that there is matter for serious reflection here.

The Yardstick of the TVA

One more example of this sort of anomaly, and we can proceed to our accounting problems. Not so much has been heard lately of the "yardstick" of the Tennessee Valley Authority, but the illusion created by that expression still prevails in many quarters. Granting that the Authority may do much to raise the economic levels of the territories it serves, it is unfortunate that its benign influences should be marred by unfair comparisons with private enterprise. The last published report of the TVA itself makes it clear that the Authority pays very little in the way of taxes compared with a private company, that the Authority pays no interest on the vast sums of capital invested in it, and that there is at least some question as to the allocations of capital charges among the various services rendered by it. But unfortunately this candor in the published accounts of the Authority is not a sufficient offset to the speeches of its political friends and sponsors who are apt to omit these substantial qualifications when they talk of a "yardstick." For every person who reads the accounts of the TVA with understanding, a thousand read the newspaper reports of the political speeches.

The same remarks apply to the "profit" now being claimed, or promised for the near future, from TVA operations. No statement of this profit would be tolerated for a moment by the SEC unless it were fully and precisely annotated with the particulars in which it differs from the profit of an ordinary private company.

Accounting and Control

Having thus established the point that criticism should not be all one way, we can proceed to consider the accounting problems of companies conducted as private enterprises, and especially of utility companies. It is not an accident that regulatory commissions everywhere have seized upon accounting as one of the most effective implements of supervision and control over the operations of the companies under their jurisdiction. By the same token those who have the responsibility for the actual management of these companies will wish to avail themselves of the same tools, for the accounts present the most succinct summaries of their operations and results. It is true that executives of varying experience have varying degrees of ability with which they use accounts as a means of control, and grasp the significance of the figures in terms of good or bad operation of their enterprises. But a lack of this ability is not a thing to boast about, as some men like to do; it represents a deficiency in managerial equipment which, if an executive is to be successful, he must make up with superior skill in engineering, in marketing, or in some other line of creative activity.

Reality the Prime Requirement

It is therefore reasonable to ask business executives to take their accounts seriously. Here I come to the proposition which suggested the title of this paper, and which is the dominant thought which I would bring to this meeting, namely, that the first requirement for all good accounting is that it be based upon, and fairly present, the realities of the situation. At first sight this will appear to be a superfluous truism, until we remember that the technicalities of accounting procedure, and the legalistic framework in which the accounts must be prepared, furnish continual temptation to be satisfied merely to comply with the technical requirements, even though the realities of the matter may be very inadequately dealt with.

Let us consider some of the accounting problems of corporate enterprise in general. The capital stock of a corporation is one of its essential features; it represents the company's legal capital, and is an important accounting concept. But the law and corporate finance are such that a good many tricks may be played with capital stock, if one is so minded. The latitudes of the law have the legitimate and entirely desirable purpose of facilitating necessary corporate business and readjustments, and the accounting for them; but when this freedom is availed of to accomplish financial and accounting gymnastics which get far away from reality, and introduce elements

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of elasticity, if not of fiction, into the picture presented by the accounts, the realities are too often lost sight of.

Take for example the issue of capital stock for property, or for the stock of another company. Here the restraining influences of a cash basis is absent; and though in exchanging stock for stock men will argue energetically about the ratio of the exchange, yet they may be much less careful about the aggregate amounts. That is, they will be concerned as to whether 1 share of Company A shall be exchanged for 2, 2½ or 3 shares of Company B, but when it has been agreed that the ratio shall be 1 to 2½, it is still possible to express that ratio as $1,000,000 to $2,500,000, or $2,000,000 to $5,000,000, or in other amounts with the same ratio, according to the valuation placed upon the shares being acquired. Only the sense of restraint of company officials will intervene to keep them from excesses which are far from any reality on a cash basis, but not to exercise these restraints is to invite distrust and condemnation for the company accounts.

Similarly, when property is acquired and paid for in company stock, a greater elasticity of values is likely to appear than in a strictly cash transaction. If the stock has a regularly quoted value the problem is helped somewhat, but the wide swings of security prices still leave an extensive range of choice. For a well-established company neither the extreme highs nor the extreme lows can be accepted as affording a satisfactory basis; nor are the quoted values of the day necessarily right. One is once more forced back upon the concept of a fair value, a reasonable value "all things considered," which means that the answer is not in the literal interpretation of any one set of facts, but in the judgment of reasonable men informed of all the facts.

Inherent Dangers

The laws of many of our states allow the use of no-par stock, and they permit a company to reacquire its own shares, sometimes with certain limitations. In England neither of these procedures is allowed; they consider that no-par stock is altogether too subject to abuse, and that the reacquisition of a company's own stock is in effect a reduction of its legal capital, a step requiring prescribed legal procedure. These considerations point the dangers inherent in such devices, but in spite of the dangers they are available to most American companies. They furnish certain conveniences and flexibilities to those responsible for company finance, but it follows that they should not be abused. The accounting rule that reacquired stock shall in the balance sheet be subtracted from capital stock outstanding is designed with these considerations in mind. As to no-par stock, the facility which it offers to state the capital stock item at almost any amount at the discretion of the directors, with the balance attributed to surplus, should not encourage directors to abandon all discretion and become capricious with respect to an item which fundamentally should show the investment of the shareholders in the company. It is true that legal and financial complexities render this a hard thing to do; but directors should not take too much advantage of these to get away from realities.

Capital and Earned Surplus

The mention of surplus brings up the problem of the distinction between capital surplus and earned surplus. From the point of view of the balance sheet they are both surplus—the excess of the net assets over the stated capital. But as an aspect of earnings—on which accounting places more and more emphasis—there is obviously a wide difference between undistributed earnings of the company, and amounts paid in by the stockholders in excess of stated capital, but still part of their investment in the company. This is a real distinction and should be maintained. But having said that, it is proper to add that there is a tendency in some quarters to magnify this distinction, especially when there is any question about so-called capital surplus from reappraisal of assets. Many accountants would like to exclude this kind of item from the surplus category altogether, and follow something akin to the British practice of regarding it as a reserve rather than surplus. But the efforts of some regulatory commissions to rake over old surpluses in an endeavor to ascertain if they are pure earned surpluses, or if some admixture of capital surplus has crept in, cannot be regarded as fruitful activity.

A few years ago the New York Stock Exchange adopted a rule with respect to the accounting for stock dividends, declared by a company which has a capital surplus. It is not necessary to trouble you with the technicalities, but the purpose of the rule is to prevent directors from taking advantage of the elastic qualities of these items and thus be in position to increase the apparent amount of stock dividends which they can declare out of a given amount of surplus. It is plain that this is a real consideration, and should have the support of all company officials who believe in reality as against make believe.

Accounting Procedure

It is perhaps worth while to call attention to the new series of bulletins which have just begun to emanate from the American Institute of Accountants. Through its committee on accounting procedure the Institute has undertaken to issue statements dealing with problems of accounting procedure. These statements are to be issued only after a good deal of study by the committee, and by the Institute's research department, and it is hoped to accumulate a literature which will serve to clarify these vexed problems and tend to crystallize opinion about them. The first two of these statements, published on September 1, deal with the treatment of unamortized discount on an issue of bonds retired by refunding, and with the procedure in quasi-reorganization, when a company undertakes a considerable restatement of its asset values and capital position.

Some of you will be disposed to reflect that these questions are settled for you in the uniform accounting systems of the regulatory commissions, and to some extent this is true. But in the first place the systems of the different commissions differ among themselves; in the second place it may be taken for granted that in so far as the systems are in conflict with sound business and accounting they will be changed. It is therefore still pertinent to ask what are the realities of the various problems, and to believe that these realities will prevail even against commissions. The statements of the American Institute just referred to were accompanied by a general statement of program and viewpoint, evidently issued with the thought that if there could be more agreement about objectives, then more uniformity of method would follow.

How then, do the special accounting problems of a public utility appear from this viewpoint? These problems are first the accounting for property, and second the accounting for depreciation. I do not include here the problem of valuation in rate proceedings, which is something quite other than accounting.

Arriving at Cost

The primary basis of accounting for property is cost to the present owner. On this proposition there is almost general agreement both among practical accountants and among writers on theory. There is in many cases a considerable problem of determining what cost means for this purpose, but such questions are problems of definition which in no wise challenge the basis itself. There can be little doubt that this is one of the realities that it is in the interests of business to maintain and preserve, and business men should be cautious about encouraging any practice not in harmony with it. The whole idea of responsibility which is at the basis of accounting comes up in the responsibility of management to account for the amounts invested in property, and to maintain those investments by adequate depreciation policies.

What then is the place of original cost to original owner, rather than to the present owner? It may be said at once that it is out of harmony with the basic principle already stated, and its justification, if any, is to be found not in accounting but in theories of regulation. In so far as it is accepted, it implies that the public authority undertakes to regulate not merely the individual utility companies but the industry also, regardless of the particular legal entity which may conduct the business from time to time. This is not the occasion to discuss that theory, but certain observations may be made upon its accounting and financial consequences.

In so far as these regulations require merely a subdivision of the property accounts to show both the cost to a former owner and the cost to the present owner, and in so far as the total of the latter may be properly depreciated by charges against income, there is little to quarrel about except the cost and trouble of providing the extra information, which may be considerable. In these circumstances it cannot be said that the basic principle is violated, provided the situation as stated is understood and frankly acknowledged by all concerned. But if the regulations portend that part of the investment of a present owner may be disallowed, or debarred from proper depreciation, that may be presumed to be something which the company concerned would be bound to resist, as defending its own property, and it could not be considered as in harmony with sound accounting. Such a position could be maintained only by attacking the genuineness of the investment itself, and we are brought back again to the question of the realities of the situation. If it could be successfully shown that the so-called cost was paid in stock at inflated values, or was the result of collusive bargaining between related companies not acting at arms length, the additional values as between the present owner's investment and that of a former owner would doubtless be held to be fictitious. But there is no justification for regarding all such transactions as suspect. When a parent and a subsidiary company both have substantial outside interests, it is the duty of each management to safeguard those interests in any transactions in which they may be involved, including transactions between themselves. A regulatory commission would and should be very ready to intervene in any case where it appeared that minority interests were being neglected in any transfer of property between related companies. Furthermore it is natural that changing conditions should from time to time necessitate transfers of property between related companies. If these transactions are honestly carried out the price agreed upon is a genuine cost to the new owner, and no accounting devices should be permitted to prevent the due protection and maintenance of the investment. Such consideration re-emphasize the importance of a sound basis for property accounting in all lines of business; whatever procedures have the effect of introducing a dubious or false note are to be avoided, and business men should recognize the desirability of doing everything they can to build up confidence in and respect for their property accounts. It can be done only by a faithful adherence to a genuine cost or investment basis.

Depreciation

Since it would be presumptuous to pretend to deal adequately with the large question of depreciation in a few minutes, permit me to state what seems to be the essence of the situation in a few simple words. The ultimate purpose of depreciation accounting is the maintenance of the investment; the difficulty of doing this is increased in proportion as wear and tear become relatively less of a factor, and functional depreciation due to obsolescence looms larger. Experience shows that the problem has in the majority of cases consisted in providing an adequate depreciation, though it is true that in some instances too much has been provided. Experience further shows that the safest and simplest basis for providing adequate depreciation is the straight-line method; in this country an overwhelming preponderance of industrial companies practice it, and in England there is a marked trend towards it. When, therefore, a retirement accounting method is proposed, the natural question is whether it provides as complete a maintenance of investment as does the straight-line method. Studies which have been made of balance sheets show that whereas the reserves for depreciation in public utility balance sheets tend to average about 9% or 10% of the value of the property, in industrial companies the average is something like 25% or 30%. It would be possible to argue that both are right, and the argument could be sustained if it could be shown that the actual rates of depreciation and replacement are different in the two groups. There is, moreover, the possibility that policies as to repairs and maintenance differ, or that other conditions are different. But so wide a disparity creates the impression that either the industrial provisions are too much, or the utility provisions too little. I shall not attempt here to say which is the correct answer, but I venture one or two observations. First, it is clear that the companies making the larger provisions, if they are also making net profits, are the better able to maintain their investments against all sorts of change. Second, utility companies should be careful to see to it that the pressures of public regulation do not lead them, even indirectly or unconsciously, to resort to retirement accounting merely as a means of seeking the line of least resistance. This may seem a strange thing to say in face of the fact that commissions in general have favored straight-line depreciation; but still more they have favored low rates, and it is this pressure that, one sometimes fears, may lead to the acceptance by utility companies of lower depreciation provisions than prudence would in the long run dictate. In so far as inadequate depreciation reserves are the result of low rates prescribed by regulatory authorities, it is only fair to investors that they be given the opportunity to build up their reserves in a transitional period of sufficient rates, and not by charges against surplus arbitrarily required.

The true answer can be found only by companies keeping an ever-watch-

(Concluded on page 60)

How a Gas Company Eliminates Guess Work in Hiring New Employees

By
Fred A. Herr
Los Angeles, Calif.

USING the Humm-Wadsworth Temperament Test as a gauge, the Southern California Gas Co. and the Southern Counties Gas Co., both with headquarters in Los Angeles, have achieved a high degree of effectiveness in eliminating guesswork from the matter of hiring new employees and in fitting them into jobs to which they were best suited by temperament and adaptability.

Finding that temperamental make-up has a significant bearing on an employee's success or failure in a given job, and in some instances makes him definitely more capable in some types of work than in others, the two firms, for a number of years, have applied temperament tests to job applicants. The tests have been of substantial value in revealing worthwhile candidates and determining the specific type of work best suited to them; and also in identifying applicants with personal characteristics which would preclude their harmonious fitting in with the job situation.

Co-authors of the Humm-Wadsworth temperament scale used in the tests are Dr. Doncaster C. Humm, a Los Angeles clinical psychologist, and Guy W. Wadsworth, Jr., personnel manager of the Southern Counties Gas Co. and the Southern California Gas Co. The scale is, in effect, an indicator of temperamental tendencies, using the Rosanoff theory of temperament as its basis.

The Rosanoff theory was devised by Dr. A. J. Rosanoff, formerly a New York psychiatrist, now State Director of Institutions in California. Dr. Rosanoff developed the theory that there were varying types of temperamental make-up, each of which is observed in exaggerated forms in abnormality. The theory sets forth that in every human being are to be found seven principal traits, a figure Dr. Rosanoff arrived at after making groupings of the innumerable minor traits which are characteristic of human beings. He contends that the number and degree to which such traits as self-control, tendency to self-improvement, social-mindedness, selfishness, elation, sociability, shyness, meticulousness, conceit, worry, caution, or any of the numerous other traits, are found in one person, determine his or her temperamental make-up. Persons with certain combinations of traits are regarded by Dr. Rosanoff as falling into one of seven classes of trait groupings. The Rosanoff theory, thus, classifies a man or woman, according to the groupings of his or her temperamental tendencies, as being a social-minded person, or as one having seclusive tendencies, tendencies toward fixed ideas, as being unusually excitable, and the like.

Guy W. Wadsworth, Jr., Personnel Manager of Southern Counties Gas Co. and Southern California Gas Co., who, with Dr. Doncaster S. Humm, a Los Angeles clinical psychologist, is the co-author of the temperament scale used in employment testing by the two firms.

In developing their scale, Humm and Wadsworth concluded that the groupings of traits represented in the Rosanoff theory, if properly applied in the selection of applicants for industrial employment, would provide an effective method for singling out individuals temperamentally unsuited for the work sought, as well as for more correctly placing workers already on the job.

The Humm - Wadsworth test, which attempts to measure the temperamental traits of job applicants, consists of a series of 318 questions to which "Yes" or "No" answers are required. The individual questions have been scientifically selected so as to reveal by unqualified affirmative or negative replies an applicant's reaction or attitude toward the situation propounded in the question, and thereby furnish a fractional key to one phase of his temperament. Some questions also are arranged in series to provide an "association of ideas" form of measurement, which elicits further clues to his temperamental make-up.

A complete test requires answers to each of the 318 questions, in order to provide the personnel department with an adequate "picture" of the applicant's temperamental composition. The answers to one, to a dozen, or even half a hundred, considered independently of the others, it has been found, constitute an inclusive measure. This is due to the fact that many of the questions have a bearing on preceding or following ones, and while the answer to an individual question serves as a key to the applicant's probable reaction to a given situation or combination of situations, and thus becomes an indicator to one or several traits, it is the sum total of all the answers which is regarded as revealing the temperament group to which the applicant belongs.

The two companies apply the tests to groups of applicants numbering from 20 to 50 each work day. When a group has completed the tests, a staff of girl clerks rates the answers. Each girl has before her a tally block, which is ruled off into seven squares —one for each of the seven groupings of traits embraced in the Rosanoff theory. A check system has been worked out for each answer. The manner in which a question is answered determines in which square or squares a check mark is placed, for some answers are weighed for more than one factor. Thus, if the

rating book compiled by Humm and Wadsworth provides that a "Yes" answer to a certain question indicates a "seclusive" tendency in the applicant and calls for a check-mark on the tally block under that heading as well as in a correlated group, the girl accordingly enters a mark in the respective squares. This procedure is followed until all 318 answers have been checked or tallied.

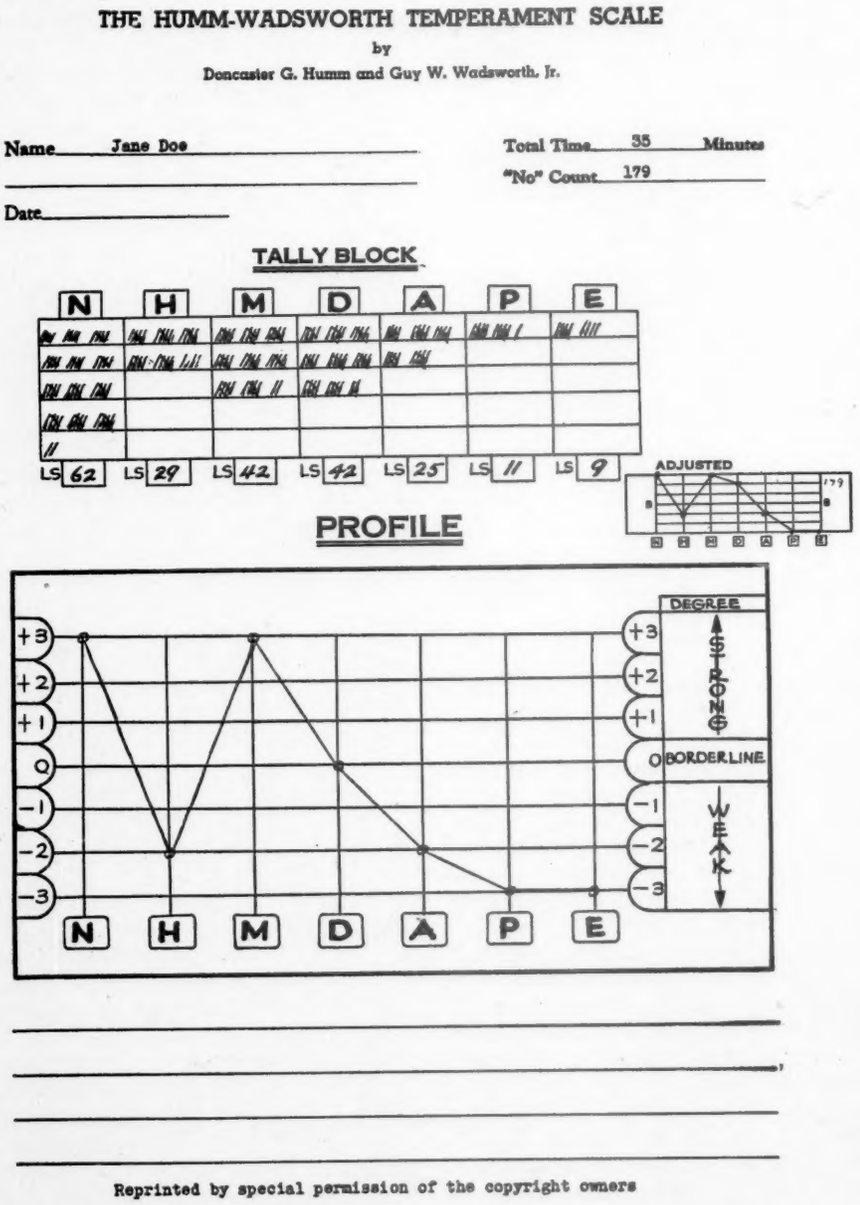
Working with India ink, draftsmen's pens and specially designed hair-line rulers of circular shape, other girls next plot the result of the tally block score on a seven-point graph, called the "profile" of the applicant. The graph is ruled into seven columns, one for each of the seven major temperament groupings. It is further divided into an upper and lower section, identified respectively as "strong" or "weak," the sections being separated by a third marked "borderline." The number of check-marks in each square on the tally block is regarded as indicating whether an applicant is strong or weak in the various temperament classifications; or whether he is a borderline case, wavering between strong and weak. Thus, if a preponderance of check marks accumulates in the column assigned to scoring seclusiveness and its correlated traits, it is taken to indicate an applicant is being "strong" in that grouping.

A rising and falling line on the graph represents a summarized version of the applicant's rating in the various temperamental groupings as "borderline," "strong" or "weak," and in graduations ranging from plus 3 to plus 1 in the "strong" section, and minus 1 to minus 3 in the "weak"section. The inked line on a typical "profile" rises and falls, showing, perhaps, plus 3 in a trait grouping as favorable, dropping to "borderline" in another grouping, and declining to minus 3 in a grouping of unfavorable traits, which, had the line indicated the reverse, might have eliminated the applicant from job consideration.

From the profile the personnel manager can determine the individual's temperament with considerable accuracy (without having personally interviewed him) and can judge whether he is apt to fit in with the organization and in which type of work he is likely to achieve the best success.

The results of the test, as condensed in the profile graph, enable the personnel manager to segregate applicants into the various temperament groups, to analyze their characteristics, and to determine whether any of them are predominant in traits which experience has shown would make them undesirable employees for that particular firm. It enables the personnel manager, for instance, to identify—and to reject, if he desires—an applicant whose anti-social and selfish tendencies, as revealed by his "profile," might make him unsuitable for working in large groups of men; or to transfer a man, whose graph indicated he possessed decided seclusive tendencies, to a type of work in which his innate shyness, sensitiveness and inclination to withdraw within himself would be no serious handicap. The latter type of man, it has been found, would probably fail as a salesman or promotion agent, but, in many cases, would be capable of good work in a job where aggressiveness and ability to contact strangers were not required.

Fundamentally the Humm-Wadsworth scale is based on a plausible premise: Adopting the Rosanoff grouping of temperamental traits as a working basis, it attempts to iden-



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Sample tally block and "profile," filled out by Personnel Manager Guy Wadsworth, Jr., to illustrate this article. It shows (upper) the point scoring system, whereby points earned by "Yes" or "No" answers to the 318 test questions are tallied under the respective headings of the seven groupings of traits represented in the Rosanoff Theory of Temperament.

(Lower)—a sample profile, plotted from the results of the tally block score. By a glance at the rising and falling line, the personnel manager can speedily discern the "type" to which the applicant belongs and his relative rating in each of the seven temperament groups. (Size of blank 8½ x 11).

tify individuals with predominant traits in those divisions. Then, experience having shown that persons with predominant tendencies of certain types have little chance of success in certain lines of work, it makes possible the rejection of such types when they apply for jobs, and the hiring of "favorable" types.

The Southern Counties Gas Co. adopted its present test program after 2½ years of research and experiments aimed at finding the most effective personnel selective system. Dr. Humm joined with Wadsworth in the research and the temperament scale bearing their name was the product of their joint effort.

Southern Counties Gas Co. started the tests in 1931, beginning with a study of the possibilities of psychological measurements. In the early stages mental ability tests alone were used, and yielded progressive results. From these tests it was discovered that the issue of job success was not invariably whether a man could actually do the work on a given job.

"We found," said Personnel Manager Wadsworth, "that disposition to use ability which the person actually possesses and the ability to get along with other people was quite as important an issue as technical skill, and frequently more so. We systematically proceeded to try different personality tests then in existence, but concluded that most of them were designed to measure single traits from high to low, or, at most, three to four traits. We also observed that behavior on the job emanated from many traits, rather than from a few. We wanted a fairly accurate measure of temperament. Such measurement appeared possible through the Rosanoff theory. We developed the present temperament scale over a period of 30 months of research and adopted it as a part of the company's selective test battery."

Results achieved in the Southern Counties Gas Co. were such that upon the merger of the Los Angeles Gas and Electric Co. with the Southern California Gas Co. in 1937, the test program was installed in the new combined companies. Wadsworth is personnel manager for the Southern California Gas Co., as well as the Southern Counties, which are separate organizations, but affiliated with each other through the Pacific Light Corp.

Eight years use of the tests by the Southern Counties Gas Co. has shown that the firm has yet to employ more than one misfit in ten hirings by the test method. The proportion of applicants who prove to be highly successful on the job was increased by 50 per cent over results formerly achieved without tests; and the proportion of unsuccessful hirings was reduced five-sixths by comparison with non-test methods. Percentages of unsuccessful hirings from 1934 to 1938 inclusive, as indicated by ratings made by supervisors in annual check-ups, were: 1934, 5.5; 1935, 9.2; 1936, 6.2; 1937, 8.6; 1938, 9.2.

Graph Clerk Margaret Moir shown preparing the seven-point graph or "profile" of an applicant. Using a circular, hair-line ruler, specially designed to facilitate the drawing of these profiles, she plots a line graph which shows in condensed form the rating of the applicant in respect to the various groupings of temperament as revealed by his (or her) answers to the 318 test questions. Holes along the edges of cards are part of the filing system, which is similar to that used by the Federal Bureau of Investigation in Washington for speedily segregating cards of kindred or allied "types" from the thousands of other cards in the files.

Since 1930 the Southern Counties Gas Co. has applied its battery of selection tests at the rate of about 1500 persons a year. Since the merger of the Los Angeles Gas and Electric Co. and the Southern California Gas Co. in 1937, tests have been given to new applicants at the rate of 2,500 a year, in addition to which approximately 4,500 regular employees have been tested.

In addition to temperament tests, applicants are given mental ability and mechanical, typewriting and clerical aptitude tests. One of the standard tests is the Detroit Manual Aptitude Test, which is designed to reveal whether the applicant possesses mechanical aptitude and physical coordination. The average number of tests given each working day ranges between 20 and 40, and on some days runs as high as 50. The examinations are given in testing rooms set aside for that purpose in the joint general headquarters building of the two companies at 810 South Flower St., Los Angeles.

"Two general types of test are in current use in the United States," Wadsworth declared in explaining the background and theory of employee testing. "The most common is the trade test or so-called 'practical test.' Its object is to test the applicant in the clerical or mechanical operations called for by the job. This has a logical appeal, but there is no very convincing evidence that trade tests, by themselves, operate to assure good selections. Consisting usually of questions drawn directly from the trade or occupation, a premium is automatically placed upon experience, often to the neglect of potential ability. The showing in trade tests may accurately reflect the relative abilities of applicants as they stand on the day the test is taken. It has been a common finding, however, that while those who make top scores in a trade test and outshine their competitors in the early course of employment, their superiority does not necessarily continue."

The chief weakness in the sole use of trade and practical tests, in Wadsworth's opinion, is that the issue of long-term success or failure on the job is not always a question of occupational skill. He has found also that even in discharges where failure of work was a factor, such failure seldom was due alone to a lack of the basic skill presumably revealed in the trade tests given.

The object of a selective test, Wadsworth emphasized, is not only to identify skill and place it where it belongs, but to develop an harmonious and mutually profitable long-term relationship between employee and the firm.

"We cannot begin and end our thinking on the task of selection with the issue of whether or not a man can drive a straight nail while we are watching him," said Wadsworth. "The psychological or temperamental angle must be considered. Psycho-

CONFIDENTIAL PERSONAL REPORT

1. List the good points of this employee as you see them.

.....

2. List the faults or limitations of this employee as you see them.

.....

3. Can you suggest any point on which this employee should improve in order to increase his (or her) value to the Company? YES..... NO..... If your answer is "Yes," please explain.

.....

.....

4. (a) Is this employee in line for further increase in pay over and above the required minimums? YES..... NO..... Please explain your answer.

.....

.....

(b) Is this employee in line for promotion to more important duties? YES..... NO..... If your answer is "Yes," please specify the job classification for which he is qualified.

.....

.....

5. Considering the actual ability shown on the job (disregarding present age, health or scarcity of applicants at the time of hiring), would you hire this employee over again if you were to make the decision? YES..... NO..... If your answer is "No," please explain

.....

.....

6. How do you rate this employee? (Check ONE):
As OUTSTANDING . . . (Definitely superior; represents the "best type" of employee in his (or her) line of work.)
(.....Plus)
As SATISFACTORY . . . (A good average employee, well fitted for the work.)
(.....Minus)
As a PROBLEM . . . (A "poor type" of employee in his (or her line of work, due to:) Check one or more.)

.....Does Not Learn	.....Age
.....In Wrong Line of Work	.....Health
.....Limited Ability	.....Drinking
.....Lack of Interest	.....Personal Financial Difficulties
.....Wrong Attitude	

Reproduction of Confidential Personnel Report which supervisors and foremen of the two gas companies are required to fill out annually for each workman to enable the firms to keep tab on a worker's progress or decline and to determine the rate of promotion and increase in pay. (Size of blank is 8½ x 11).

logical testing, as the Southern California and the Southern Counties Gas Co. approach the problem through the use of the temperament tests, deals primarily with the mental and temperamental adjustment of the worker to his job. The basic assumption we make in our hirings is that if the workers who succeed in given occupations possess certain characteristics which can be measured, then if we limit our hirings to applicants who have the same characteristics by measurement, we will increase the proportion of success in hiring. Stated otherwise, our procedure is to measure employees of known success, and then to find applicants who are like those who have made good.

"Temperament is a clue to behavior in many personnel situations. A given trait is often found in 'regular' company. The person actuated by conceit is apt also to be suspicious and easily offended. The individual who reacts emotionally is also usually social-minded and communicative. Groups of traits, therefore, lend themselves to classification, and are referred to as 'components of temperament.' Attitudes, reactions, patterns and slants on environment may be understood when we determine the degree to which the ego, inhibitions, emotions, imaginations and other factors figure in the make-up of the individual. When we know what treatment an idea or an impression is likely to receive from such mechanism, we can predict behavior reasonably well."

The questions in the Humm-Wadsworth Temperament Scale are designed to elicit a complete picture of the mental make-up of men and women applying for work with the two gas companies; to reveal to one conversant with their significance the egos, inhibitions, emotions and impulses which sway the individual applicant, and which, when correlated with known factors of human behaviorism, permit the personnel manager to determine whether the applicant would be a desirable addition to the company's force.

The interest of the Southern Counties Gas Co. and the Southern California Gas Co. in a new employee's behavior on the job does not cease when his name is placed on the payroll. It is not assumed that passing the initial hiring tests is a guarantee of success at actual work, or of continued success, for it has been found that in the course of time, in many cases, factors which were not present when the tests were given develop to alter an employee's relation to the company and his job.

Annual check-ups of the employee's performance on the job are made. Supervisors and department heads are required to report on each worker individually and to rate him according to the degree of success shown while working on the job. Favorable ratings by the supervisors constitute an important factor in determining an employee's degree of success and the rate of his promotion.

When a showing is unfavorable, it is the practice of these firms to discuss the fact with the employee and to give him a case study to the end that he will know the particulars of his failing and be encouraged to improve his work. Such case studies are handled by the personnel department, with the cooperation of supervisors and foremen.

Recognizing the fallacy of keeping an employee in a job he cannot handle properly, the two gas companies make use of a comprehensive rating system, designed not only to disclose misfits but also to determine the relative abilities of good workers and to obtain information on which to base the degree of promotion and raises in pay. Finding that formal rating devices are not entirely reliable because they tend to stress the attributes of ideal employees without always revealing the supervisors' true views, the two firms make use of a confidential personnel report system. This system is intended, through a series of direct questions to supervisors and foremen, to reveal the true status of a worker, his attitude toward his job and his coworkers, and personal habits and characteristics that may be handicapping him in the performance of his duties.

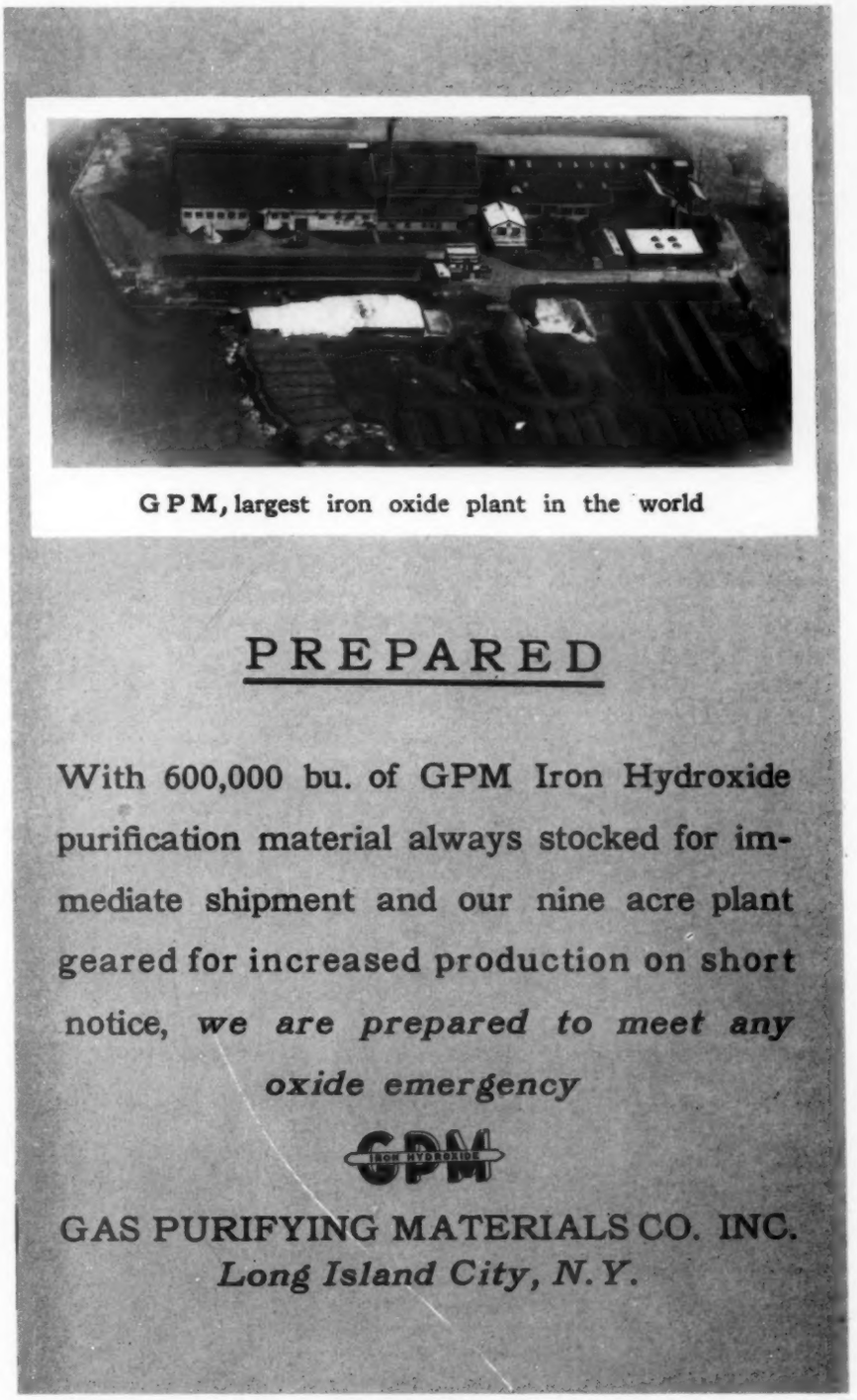
The supervisors are advised that answers should be given in their own words and should represent

their own opinions, whether formed by direct contact with the employee, or from what has been heard about him. Prefaced by routine questions concerning name of worker, his department, division or district, and the name of his supervisor, the questions asked in the Confidential Annual Personnel Report blank are shown on the previous page.

The gas companies have obtained the best results in this program when ratings were made annually rather than at more frequent intervals, and when ratings are secured in the "off-season" with relation to lay-offs and salary changes. The attitude of supervisors and employees alike is favorable to this case work, according to Wadsworth. The former show their attitude by loading the personnel department with more requests for case studies than can be readily handled; and the employees, under a tactful approach, in most cases are amenable to the case studies. The firms have found the following prelude to a case study effective in securing the co-operation of employees:

"People in charge of your work (the employee is informed), and whose good opinion of you is important, have made the following observations: . . . I do not know that these observations are 100 per cent correct, but I offer them as facts in the sense that other people believe them, and presumably act toward you in accordance with them. I am not going to tell you who made any individual comment. My purpose in telling you what is in the report is merely so that we can consider ways and means of changing unfavorable opinions into favorable ones."

On the whole, the testing, rating program and case work employed by these West Coast gas companies appear to operate together in a way which insures long-time success of the employee on the job. The temperament tests have been used over a long enough period to demonstrate their unquestioned value and effectiveness as time and money savers by making it possible to identify incapable and unsuited personnel in *advance,* as compared with the less logical and practical method of waiting until an employee proves his fitness or unfitness *after* being hired.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GAS PURIFYING MATERIALS CO. INC.
Long Island City, N.Y.

Attractive Show Room

Showroom of the recently modernized Flushing District Office of the New York and Queens Electric Light and Power Company at 136-21 Roosevelt Avenue, the doors of which were officially opened at a special ceremony on Tuesday, September 5, at 9 a.m., by the Honorable John J. Halleran, Commissioner of Public Works, Queens, and president of the Flushing Chamber of Commerce, in the presence of Queens civic leaders, utility executives and business men.

A Brief History of the Natural Gas Operations of Glenn T. Braden and Associates in Oklahoma—1905 to 1921

Part 3

By

R. H. Bartlett

During these years Tulsa and Oklahoma City continued to grow in population and all these pipe lines carried their full capacities in winter. In 1915, Mr. Braden organized the Enid Natural Gas Company and built an 8" line from the Blackwell field to Enid, also supplying Deer Creek and Lamont. Some time previous to this, he organized the Lowland Oil & Gas Company and built distributing plants in Bixby and Shamrock.

About this time the Devonian crowd organized the Peoples Fuel Supply Company in Kay County and the Vernon Gas Company, supplying Peckham. In 1916, it was decided by the Directors of all these companies, to merge them into one large company. In order to accomplish this and arrive at fair values for all companies, they held a joint meeting and appointed a committee of prominent and experienced gas men in Pittsburgh, Pa. This committee was headed by Mr. Harry Reeser, elder brother of E. B. Reeser, President of the Barnsdall Corporation. This committee took the statements and reports of all these companies, arriving at a fair valuation of each and the fair proportion of stock to be given in exchange for their present stock holdings.

It was finally decided to use the Oklahoma Natural for the consolidated company. Its capital stock was increased to $10,000,000 and stock of the other five companies was exchanged for stock of the Oklahoma Natural on the above basis. The Oklahoma Natural also assumed the bonds and debts of the smaller companies, including Caney River of $400,000 and Enid Natural of $300,000 of bonds.

As the Hogshooter was the first large gas field in Oklahoma and as most of this gas was sold to the Kansas Natural Gas Company from 1910 to about 1915, the gas going to supply cities and towns in eastern Kansas, it might be of interest, at this point to state briefly the conditions and the final deal which transferred the Kansas Natural Gas systems to the Henry L. Doherty interests of New York.

During the spring of 1916, when we were all in Washington to get the Osage lease renewed, I had dinner one night with Mr. Vic Hays, who was the Kansas Natural representative in Washington at these hearings in Secretary Lane's office. Mr. Hays had been the Auditor for the Kansas Natural for years; and when Mr. John Landon, father of Alf Landon, was appointed receiver for the Kansas Natural, Mr. Hays became his right hand and had charge of all the offices and records.

Mr. T. N. Barnsdall organized the Kansas Natural Gas Company back in about 1906 or 1907, and for years was the largest stockholder. The Kansas Natural had both a first and second bond issue on their properties at the time of receivership, and Mr. Barnsdall owned some of the first and second issue. Mr. Doherty had a private representative, Mr. J. C. McDowell, who had been a prominent natural gas man for years, having been General Manager of several large gas companies. I believe, he was at one time, General Manager of Kansas Natural before the receivership.

The Doherty interests had previously purchased the Wichita Natural Gas Company from Mr. Barnsdall and had developed quite a lot of oil and gas in Kansas.

On account of the receivership and the further fact that both the bond issues were in default, Mr. Doherty decided to acquire the Kansas Natural and take it out of receivership, so he put the proposition up to Mr. McDowell, as Mr. McDowell had been purchasing other properties for Doherty."

At this dinner with Vic Hays in Washington, he told me about this proposed deal, and said Mr. Barnsdall had just sold his Kansas bonds to Mr. Doherty through McDowell, and that McDowell was quietly picking up all these Kansas first and seconds as fast as possible. It seems Hays had had a run-in with McDowell and was sore, and was telling me his troubles. Both Hays and McDowell have since passed on. After I had the gist of his story I went to my room and sent a code message to Mr. Braden in Tulsa. Mr. Braden was a stockholder in Kansas and also had many friends who were stockholders. On receipt of my message he wired me to meet him in Pittsburgh at once. He got in touch with Mr. Barnsdall and found he had sold his bonds.

He called up several of the large Kansas stockholders in Pittsburgh and Oil City, Pa., for conference. The result was they formed a Stockholders' Protective Committee and went to work raising money to bid for the Kansas gas system if it was put up by the Court for sale. At this time the Kansas stock on the Pittsburgh market was dead and selling in a small way around $5 or $6 per share. The stock had previously sold up around $50 or $60 per share. The receivership had knocked the price way down. The Kansas, in the meantime, had been having one law suit after another, on rates; and also there were three sets of receivers, claiming jurisdiction. The whole thing was in as bad a shape as a corporation could get. A small group of Kansas stockholders, including Mr. Braden and Judge Ames, went to New York and put their cards on the table. After two or three meetings with Mr. Doherty, he finally said: "Gentlemen, I will pay $40 per share to every Kansas Natural stockholder who wants to sell at that price." When this came out the market immediately jumped to $40 and the deal was closed, all stockholders, with the exception of one large stockholder in Pittsburgh selling their stock.

From the early days, gas pipe lines have always been bothered with nat-

ural gas gasoline and water in the lines. At every low point we always put in a drip to catch this moisture. In winter especially, condensation would accumulate and interfere with the flow of gas. The line walker would have to blow out these drips every day or so to keep the line clear. A great deal of this moisture was natural gas gasoline. In the early days there was no use for this and it was blown on the ground; but as automobiles came in, the pipe line men began to save this gasoline for their cars. Mr. Dennis Hastings and Mr. Braden, in West Virginia, before they came to Oklahoma, began to figure on a way to extract this gasoline from the natural gas on its way through the pipe line; and they built a condensing plant at Hastings Compressor Station on the Hope Natural Gas line to Cleveland, using large coils laid in water ponds at a point where the hot gas left the compressor station. It worked, and they began to take large quantities of gasoline from the gas. They gradually made improvements on this system and reported it to their Standard Office in New York. These plants were called absorption plants, because the gas was run through mineral seal oil, which oil absorbed the gasoline from the gas. The gasoline was then taken out of the mineral seal oil and the seal oil was used over and over again.

One day an engineer by the name of Saybolt came to Hastings station and Mr. Hastings showed him all about the gasoline plant. He went back to New York, made up drawings and had the system patented in his name, for the Hope Natural Gas Company. Nothing was thought about this patent until other gas companies began to build similar plants at their pump stations. Then the Hope Company came around with a royalty contract and many of the Eastern Gas Companies signed up to pay the Hope Gas Company a royalty with a schedule running up as high as 20%.

In the meantime, Mr. Hastings came to Oklahoma and built the Kelleyville Station on the Oklahoma 12" line and also put in his gasoline plant. The Oklahoma Natural began to sell natural gas gasoline. A little later Mr. John Pew, who had succeeded Mr. Braden as President of Hope Natural Gas Company in Pittsburgh, wrote Mr. Braden, inclosing a blank royalty contract, asking him to have it executed by the Oklahoma Natural Gas Company and return it. Mr. Braden and Mr. Hastings naturally felt this to be an imposition on the part of the Standard people, their old friends, and refused to sign, on the theory that they should be allowed to use their own system on their own companies in Oklahoma. A few months later, Hope Natural Gas Co. wrote and threatened suit, because as they said, no other company would sign up until the Oklahoma company did. About this time Mr. Braden contacted an old friend, Mr. Chas. Burke, who had been a refinery man for the Standard in New Jersey. Mr. Braden had sent to Washington and secured a copy of the Saybolt patent. He had Mr. Burke study this patent, and Mr. Burke reported back he didn't believe the patent was good. Mr. Braden then decided to get ready for a law suit. He sent Mr. Burke to Washington, retained one of the best patent attorneys in Washington, unbeknown to Mr. Pew; and they went to work on the case, securing many fine witnesses, mostly refinery engineers, from all over the country, among them Dr. Francis, now on the editorial staff of the Oil & Gas Journal. They studied old English and German patents back three hundred years. Then, after they had been working on this case for six months or more, the Hope Company cracked down with the lawsuit. The day they filed the suit against the Oklahoma Natural Gas Company, Mr. George Prevost, our Washington patent attorney was ready to go into court and try the case. He not only had his case in shape, but had all his expert witnesses ready. The Hope Company then began to build up their case, and soon found that Mr. Braden had been ahead of them. Mr. Prevost retained another prominent patent attorney in Boston, Mr. Fisk. Mr. Pew went after him and found he was already retained.

After about another year the case came to trial before Judge Robert Williams in the Eastern Federal District Court at Muskogee. It was a hard fought case, and Judge Williams took nearly two years before handing down his decision in favor of the Oklahoma Natural Gas Company. The Hope Company carried it up to the Circuit Court of Appeals and Judge Williams' decision was sustained. The Hope Company then dropped the case.

In 1918, the new Oklahoma Natural Company purchased the Central Light & Fuel Company of Sapulpa for $35,000 plus assumption of $137,000 of bonds.

On June 1, 1919, the Oklahoma Natural increased its capital stock from $10,000,000 to $15,000,000. It sold $3,000,000 of stock at par, $25.00 per share. At this time Mr. Glenn T. Braden was the largest stockholder in the merged Oklahoma Natural Gas Company. From the proceeds of the sale of this stock, the Oklahoma Company laid a 12" line from Oklahoma City south to the Chickasha Field.. An 8" line was laid from the Chickasha Field to the Cement Field.

I resigned as Vice President and Treasurer of Oklahoma Natural, but stayed on the Board for another year. In 1921 Mr. Braden sold all his stock to a syndicate composed of J. V. Ritts, Butler, Pa.; R. C. Sharp, Tulsa; Harry Crawford, Emlenton, Pa.; T. B. Gregory, Pittsburgh, Pa. and a few others.

Mr. Glenn T. Braden, in the later years of his life, invested practically all his profits from oil and gas operations in Oklahoma in properties in and around Tulsa. He purchased the McEwen Manufacturing Company from Jim McEwen of Wellsville, N. Y., at a big price and lost most all the money he put into it; but that plant has carried payrolls in Tulsa, since about 1911, of several hundred thousand dollars a year, and is still operating as the Braden Winch Company and also as the Braden Steel Corporation. No doubt this plant has disbursed upwards of $7,000,000 in payrolls in Tulsa in the last 27 years.

Mr. Braden died in September, 1923. At his death he was one of the largest holders of suburban acreage in Tulsa County, owning nearly 1,000 acres, just east of Tulsa. He was always a great booster for Tulsa and got so he never liked to leave the city and would always come back as soon as possible. He was one of the pioneers of Tulsa and was a builder. His hobby was his fine farm, now known as White City, which name he gave it years ago, when he operated the finest dairy herd of registered Jerseys in the Southwest and sold Jersey milk to the babies of Tulsa for years.

The inside story of the financing of all the so-called Braden Gas Companies, namely:

Oklahoma Natural Gas Company
Osage and Oklahoma Company
Caney River Gas Company
United Fuel Supply Company
Lowland Oil & Gas Company

also his oil companies, namely:

Braden Oil Company
Duquesne Oil & Gas Company
Braden and Moore

is this:

Mr. Braden financed all of these companies from his Pittsburgh office, through several different Pittsburgh banks, from 1905 to the time

of the merger in 1917. He continued to put up collateral and endorse for all of these companies for many years, as well as selling many issues of bonds, mostly in the East around Pittsburgh. At one time, he had upwards of $2,000,000 in notes in various banks, mostly in Pittsburgh, for all of these companies. Although some of the other Directors in the Oklahoma Natural endorsed with him, he borrowed the money and was, therefore, mostly responsible, even for the notes of these companies.

In 1907, he developed a fine oil production in Crawford County, Illinois, and this production in the winter of 1907-08 was up around 2,000 barrels per day. On account of his load of notes, especially during 1907, he felt he should ease up on his obligations.

In the spring of 1908, he was approached by W. C. McBride, who was a small but successful independent operator, mostly in West Virginia. Mr. McBride offered him $500,000 cash for his Illinois production. Mr. Braden knew his production, with a nice block of undeveloped acreage was worth much more. He went to New York City and talked to some of his old friends, officials of the Standard of New Jersey, and approached them in regard to a loan on his production. They turned him down. His closest friend and banker in Pittsburgh, Mr. J. C. Chaplin, as well as myself, urged him not to sell to Mr. McBride; but the $500,000 cash looked so good he finally took it. This property formed the Silurian Oil Company, with Mr. McBride as its President. Mr. McBride moved to St. Louis, after this purchase, and operated this property. The production began to increase and to the present day the property is still producing. I would estimate the Silurian Oil Company has taken from the property upwards of $20,000,000 in the last thirty years. Mr. Braden, by selling out in Illinois, gave up this Bonanza and kept his gas interests in Oklahoma. He only realized a fair profit when he sold his gas stocks in 1921.

The writer, R. H. Bartlett, was connected with the T. N. Barnsdall interests from 1898 to 1905, when he went with the Osage and Oklahoma Company as Secretary and Treasurer, he was still associated with Mr. Barnsdall until Mr. Barnsdall sold his holdings in these Oklahoma Gas Companies, largely to Mr. Braden. He was then associated with Mr. Braden until 1919, and handled all Mr. Braden's finances in Pittsburgh over this entire period of 14 years.

Mr. Barnsdall and Mr. Braden were two of the very finest men to work for. They were very hard workers themselves and expected their employees to be the same. An interesting side light, which should be mentioned in this history, was the financing ability of T. N. Barnsdall.

During the panic of 1907, Mr. Barnsdall went to New York and borrowed a large sum of money from the Standard Oil Company; among the securities he put up was his acreage and oil production in the Osage Nation. The Standard sent one of their most dependable men, Mr. Jimmie Young, to Bartlesville as General Manager of the Barnsdall Oil Company. He was assisted by his son, Watt Young, who afterwards became President of the South Penn Oil Company of Pittsburgh. Mr. Barnsdall had a way of borrowing money when no one else could. He was always an independent oil operator, more or less in competition with the Standard interests, still he borrowed a large amount when you couldn't get a loan from banks, regardless of your collateral.

Mr. Barnsdall was a big two-fisted jovial man, who had worked his way up from the field in the early days. He stood about six feet four and was big all over. He had a great sense of humor and always had a funny story even when all his bank accounts were overdrawn. I was in his office one day when one of the officers of a Pittsburgh Bank called and said their Board had called his loan of $100,000.00 and if he didn't take care of it by the first of the month, they would have to sell his collateral. Barnsdall said:

"That's fine, go ahead and sell it; I've been trying to sell it for two years." Then he added, "By the way, send me up a blank note; I still have some ink and I want to borrow $25,000.00 more." The Banker said, "What," and Barnsdall repeated. A little later in the day the blank note came up. At another time the National Tube Company sent a man down to his office to get a payment on a pipe note, which had been running for some time. Barnsdall promised to send up a check on the first of the month. The young fellow started for the door, and then turned around and said:

"Mr. Barnsdall, I'll bet you a suit of clothes you don't send that check up on the first." Barnsdall said: "Young fellow, you're just trying to get me to buy your clothes."

Mr. Barnsdall had an Auditor in his Pittsburgh office who had but one leg and used a crutch. He was always watching for the mail so he could get a record for his books of whatever came in. One day Barnsdall got the mail, went into his private office, opened it all up and scattered it over his desk and the floor. I went in to see him just as he was ripping open an envelope. Out came a draft for $6,000.00. He folded it up and put it in his vest pocket.

"There," he said, "that's some money he won't get a hold of." Just then the door opened and in came the Auditor. He said: "Mr. Barnsdall, did you get a letter in this mail with a draft for $6,000.00; I'm expecting one."

"No," said Barnsdall, and then laughed. "Say," he said, "if you had two legs you would be in my office all the time."

Barnsdall would take money out like that and buy some lease. The office would have to get the record the best way it could.

Mr. Braden was a good deal the opposite from Barnsdall. Notes at the banks bothered him. He never liked to go to a bank and ask for a loan, and was always glad when a note was paid or a payment made on one. He appreciated the value of correct records in his office, and I never had much trouble getting information.

Mr. Braden had a good sense of humor. One day a one-armed man came into the office applying for a job. Mr. Braden happened to see him and asked him what work he could do with only one arm. The fellow pulled a hook out, fastened it to his stub and said: "With this I can do a lot of hard work in the field." So Braden gave him a job and sent him down in the field. A few days later a car load of material was shipped to this field, including some wheelbarrows. The Field Boss called on the phone later and said to Braden: "Two or three of those wheelbarrows had only one handle. What will I do with them?" Braden quick as a flash replied:

"Why, let that one-arm man I sent down there the other day use them."

Both Braden and Barnsdall were good-hearted and they both gave lots of money to poor field workers who were down on their luck. Many times they loaned quite large sums to old friends and helped them to get back on their feet in the oil business.

The Devonian Oil Company crowd were also a fine group of men, and unusually efficient in the production of oil. Mr. J. H. Evans, their Pres-

ident up to the time of his death, was a lovable character whom we all called Uncle Joe. Mr. Jim Leonard, Mr. A. W. Leonard's father, was very much the same. These men, like Barnsdall and Braden, started in the oil business in the early days of Pennsylvania. Mr. A. W. Leonard was the field operating manager for the Devonian from the time they first entered the Mid-Continent field. He succeeded Mr. Evans as President of Devonian Oil, and is President at this time. Mr. Harry Heasley was another of the fine Devonian men. For many years he was their financial man and worked out most of their financial problems. Mr. Heasley and I were always very close friends because we talked the same language when it came to finances. I always thought the world of all these men and enjoyed working with them and for them.

After Mr. Braden's death in 1923, I returned to Oklahoma and represented his estate for nearly ten years.

Another sidelight, which should be mentioned here, were the two famous income tax cases of Mr. Braden with the Internal Revenue Department. It seems, when we were considering the merging of these gas companies in 1916-1917, Mr. Braden sent Judge C. B. Ames to Washington to find out about the possible income tax which might be involved in this transaction. Judge Ames laid our plan before two or three solicitors in the Revenue Department and they told him there would be no tax on such a transaction, because these companies all had common stockholders, and such stockholders would have the same relative interest in the same properties after the merger. After returning to Oklahoma, Judge Ames gave us a letter, a copy of which was mailed to all stockholders, saying there would be no income tax on the trade of these stocks. However, the next year, 1918, an Income Tax field man came to check Mr. Braden's 1917 return and discovered this merger. He decided it was a purchase by Oklahoma Natural and a sale by the other companies. We explained and explained, but he could not be dissuaded and made his report to Washington, charging an extra, additional tax against Mr. Braden of $825,000. This was a hard blow to Mr. Braden, and he turned the case over to Judge Ames. Judge Ames went to Washington and started looking for the solicitors he had talked with in 1916. They had all left the service, and the present solicitors disagreed with Judge Ames.

While this case was still hot, Judge Ames was appointed Assistant Attorney General under A. Mitchell Palmer, and of course was immediately on the other side of the fence. He, therefore, had to drop Mr. Braden's case, and it stayed pigeonholed until the early spring of 1923. In the meantime, Mr. Braden had retained Judge R. C. Allen as his attorney in Tulsa. Judge Ames, in the meantime, had gone with the Texas Company, he having gotten acquainted with the Texas officials through his work for us. Judge Allen, with the assistance of the tax firm of Abercrombie and Rush of Tulsa, went to work on this tax case in April, 1923. Mr. Braden worried over this case so much that he was taken sick in May and was unable to go to Washington. He therefore sent for me and I came to Tulsa and went over the case with Judge Allen and the tax firm.

The four of us went to Washington and were there practically all summer. Judge Allen and Abercrombie and Rush never worked harder on a case in their lives and it was not until after Mr. Braden's death in September that the case was finally settled for about $288,000.

It was while Judge Allen was working on this case that he found Mr. Braden had paid nearly $1,000,000 in income tax on his production in the Osage Nation. Judge Allen took the position that the Government had no right, under the Revenue Act, to tax this oil, or rather the proceeds received by the operators, as the Indians were wards of the Government and the operators were agents of the Government. The oil belonged to the Indians and the Indians were not taxed. In other words, the oil was not taxed at its source and therefore, if part of it was not taxed, none of it should be. The Indians paid the operators a certain percentage for producing it.

This case was tried in the Federal District Court at Pittsburgh, Pennsylvania, and the Government lost. They carried the case to the Circuit Court of Appeals in Philadelphia where the lower court was upheld. It then looked as though Mr. Braden would recover something like $1,200,000 with interest added.

The Attorney General's office in Washington decided to drop the case and settle with Mr. Braden, in fact Judge Allen received a letter from the Attorney General's office to that effect. A similar letter was sent to Mr. Andy Mellon, Secretary of the Treasury. It seemed that Mr. Mellon had a large personal interest in other production in the Osage Nation and his company would receive a large tax rebate. Mr. Mellon, no doubt thinking the U. S. Supreme Court would confirm the decision of the lower court, thus placing his company in position to get this rebate, ordered the Attorney General to carry the case up and the result was that the Supreme Court of the U. S. disregarded the law entirely and reversed the lower court on the ground that it was a matter of public concern and too much money would have to be returned to all the producers in the Osage. Mr. Justice Stone wrote the decision and it only contained about 25 words, but these were expressive words to all the producers in the Osage Nation.

The writer of this history inadvertently, in the summer of 1916, was able to do a good turn for the Kansas Natural Gas Co. which had just been purchased by the Doherty interests of New York. Mr. John Landon, who was still receiver for Kansas Natural, was having a rate case before the Eastern Federal District Court sitting in Kansas City, Kansas, Judge Pollock's court. Judge Pollock had already heard several of these rate cases of the Kansas Natural and decided to disqualify himself, so he sent for Judge Booth from Minneapolis.

The case got to a point where they wanted some expert advice in regard to the lines and gas supply in Oklahoma. Mr. Landon wired Mr. Braden in Tulsa to come up and testify to these facts. Mr. Braden never liked to be a witness in any case, so he brought the telegram into my office and said: "There is a job for you, Bob, go up there and help John Landon."

I left that night for Kansas City, and was on the witness stand for a solid week. Mr. Robert Stone of Topeka was general counsel for Mr. Landon, with four or five other attorneys. The Corporation Commissions of all three states involved, namely, Kansas, Missouri and Oklahoma, had several attorneys present, so there were forty or fifty lawyers there all looking after the interests of their particular clients.

I found myself in a tough spot. First one attorney and then another would jump up and ask me a question or two, and this went on for several days. I was happy when Judge Booth handed down his decision giving the Kansas Natural a nice increase in rates, and especially when Mr. Landon told me later it was my testimony that turned the tide.

I have always had a feeling that I did the Doherty interests a good turn, as well as all the oil and gas operators in the Osage by the Page deal.

A Hotel Man Looks At Gas Service

by

Ray J. Kief

Food and Beverage Manager
Hotel Lexington
New York, N. Y.

RAY J. KIEF

It has been most interesting in my twenty-three years of catering experience to note the improvement in cooking fuels. I can easily recall the endless amount of ashes and subsequent dirt of the coal ranges—likewise our chagrin on those cold mornings when the fireman overslept. The change over to gas ranges was a great relief but in the late 'teens it was more or less unreliable, when winter really set in. We were told the demand was extraordinary, moisture in the pipes caused an irregular flow and many other reasons were advanced for the service failure and sometimes we wanted our coal ranges back in the fold—but that is all history now and the difficulties have been overcome.

Economy of Efficient Equipment

The contacts which I have had with the various gas companies have impressed me greatly with their community spirit. I know from the wider range on which my travels have taken me that you work through an association but you have kept yourselves local in your dealings with your consumers. I can better illustrate this point by recounting some of the services which have been rendered in the cities in which I worked. About fifteen years ago in Cleveland we had a faulty type of a nationally known range in a major hotel. The local gas representative constantly made monthly reports of leaky rings, improper heating surfaces and excessive gas consumption. It was finally recommended that we consider the purchase of new equipment. Several models were submitted for our approval. The outlay was rather large and in a dull period of time.

The manufacturer guaranteed a saving of twenty per cent in fuel costs and reduction in maintenance. Our exact saving was over twenty-five per cent in the first year.

More recently in the State of Iowa we had one hotel in our group that was poorly financed. The gas equipment was in deplorable condition—it was costly and inefficient. I called in the local gas company's hotelman and explained our problem. He immediately offered us a choice of three new types of ranges on a deferred payment plan over a period of two years.

The saving in fuel consumption almost offset the cost and we gained in a greater measure with more contented employees who turned out better cookery for our guests.

Wastes Overcome

In these days of economy it is difficult to induce a hotel or restaurant to change equipment. However, I don't think the waste incurred by faulty cooking equipment has ever been too clearly stressed. The burnt out top prevents the fast cooking of the breakfast eggs in their different styles, it causes a sogginess of deep fried items because of the lack of high temperature, a tremendous shrinkage of roasts in a slow leaky oven and at the luncheon and dinner period, the sauce or second cook just can't perform without a hot spot top. A comprehensive study by your association and a presentation of these facts would be helpful to our industry.

The gas manufacturers have gone much farther in the household field than in the commercial from my observation. The present home type of range with its built-in clock, temperature control, harmonizing color scheme, its proper height and easy cooking features has added much to comfortable home cookery.

On Air Conditioning

The rapid advance of air conditioning is bringing about new situations in the hotel kitchen. Years ago when the temperature was over ninety, the average guest was contented with a location near an open window, the sound of an electric fan and chilled salad or cold meat dish—but not today. He finds after settling down in a dining room that is ten to fifteen degrees cooler than the street; that boiled beef is just what he wanted, a veal cutlet or even spare ribs and sauerkraut.

This throws a heat load on the kitchen and the temperature degrees gained by the guests are added to the cooks. This condition is becoming more serious each year because there are so many counter-balancing influences. The chef rides down in the comfortable air-conditioned club car from his Connecticut home to swelter in his daily occupation and he has the option of visiting ever so many cool spots in the afternoon.

A new heavy-duty range will soon have to be designed with air chambers and proper insulation to eliminate the heat on all but the cooking surfaces. This past year we put a double plastic insulation on our bake oven and reduced the temperature in the shop ten degrees. It will never be practical for obvious reasons to have an air conditioned kitchen but good planning and designing can aid in the comfort of kitchen employees.

A.G.A. Approval Recognized

I often wonder if we in the hotel industry fully avail ourselves of the services of your association. I recall when The Buffalo Statler was opened we received so much sales pressure on our gas equipment because of the prestige of the account and finally went to your laboratories and asked how we could secure an unbiased test of the merits of the equipment offered. The test was conducted without charge, the heating surfaces were checked, the ovens and amount of gas consumed—it undoubtedly saved us thousands of dollars. I don't know if I am presuming on your association or not but to every new gas device that is offered for our considera-

Presented at Twenty-first Annual Convention American Gas Association, Industrial Gas Section, New York, October 9-12, 1939.

tion my answer is trite "is it approved of by The American Gas Association?"

I have naturally by reason of my experience to believe that anything that might improve the efficiency or control the fuel consumption might be considered by you. The approval of Good Housekeeping Institute is acceptable to the housewife and I feel sure the hotel industry would accept your seal with the same confidence.

Gas consumption has not been a large item at the Lexington, no more than one per cent of our volume but it is in the control class of expenditures. We can by carefully watching our weekly reports keep it in line with the dollar sales. In group organization fuel comparisons are helpful. The individual hotel must depend on other agencies. A bulletin service by the gas companies in their respective cities would be of great assistance.

All business today has the same basis—SERVICE—we have to be constantly alert to retain patronage and to defeat or curtail competition. We fail when we forget to individualize, to study our consumer needs and to keep him sold on our products.

Summary

I have tried to briefly bring out pertinent points in your service as I see them and in summary they are as follows:

1. A regular monthly inspection by a competent representative of your company.

2. To bring the attention of the hotelman to excessive gas consumption because of worn-out and faulty equipment.

3. In the case of small hotel to modernize their equipment and offer a deferred payment plan.

4. To encourage manufacturers to create and design new commercial equipment to add to efficiency and comfort of kitchen employees.

I am appreciative of having the opportunity of meeting with you and to express the friendly feeling I have for your industry.

Canadian Notes

The Norotto Gas Co. Ltd., Norwich, Ont., a new concern which is now laying pipe lines in Norwich, Springford and Otterville villages to supply the public with gas from its extensive field at Brownsville, is finding a ready response to its sales and service efforts. In spite of the fact that the areas in question are well covered with service lines of the Hydro Electric Power Commission of Ontario which is actively promoting the sale of hydro in the rural areas, it has been found that farmers prefer gas in furnaces, stoves and hot water heaters to electricity. While convenient, electricity has been found not only more expensive but decidedly slower for heating bath and general household water. Even with the latest approved types of electric heaters it requires the continuous operation of an element to insure a regular supply of hot water. Gas will heat the same volume of water in but a few minutes.

The Norotto Gas Co., which has just opened a general and sales office in Norwich, now has expert heating engineers available at its store here and the one being opened in Otterville. The construction of pipe lines is now going ahead locally with all possible speed before the onset of freezing weather.

The Union Gas Co., Aylmar, Ont., is buying options on farm property all through the area south of this town, farmers getting from twenty-five cents to one dollar an acre for one year's option and additional royalty in case gas is struck. Other gas wells have been struck in the vicinity of Luton and Dunboyne and other wells are being drilled. The Union Gas Co. is finding a keen demand among tobacco growers and farmers for gas services. Many farm homes are heated with gas.

The recent bringing in of another high producing well in the Brownsville, Ont., natural gas field, brings the total in the area near the 100 mark. Lyle Kidd and his drillers have just brought in two fine wells, one with a daily production of 1,000,000 cubic feet, and the other with a flow of 1,500,000 cubic feet.

Filling The Shells

British Gas Industry's Colossal War Effort

The productive capacity of Britain's $1,250,000,000 gas industry has now reached an increase of 50 per cent over that of the war period between 1914 and 1918.

"In all parts of the country gas undertakings are better equipped than ever before to meet the demands now being made upon them," said an expert of the British Gas Association.

"Because of its extreme flexibility—4,000 different trades use it for an average of seven processes apiece—gas is increasingly the fuel used in the production of armaments where accurate temperature control is essential.

"Equally important is the fact that in the carbonization of coal to make gas, chemists win as by-products many essential 'sinews of War'. Among these are TNT, lyddite and other high explosives; benzole motor spirit; sulphate of ammonia, a powerful fertilizer; and many drugs and antiseptics.

"How much of all this the industry can now provide is indicated by the fact that during the last war one gas undertaking alone supplied TNT and other explosives to fill 160,000,000 shells, 70,000,000 gallons of oil, 13,000 tons of disinfectants, and enough tar to treat all the military roads on the Western Front.

"Britain is fortunate in using more gas per head of the population than any other country in the world, for no other method of utilizing coal captures so many by-products vital to a nation at war."

"West's Gas Monthly"

West Gas Improvement Company, New York City, announce that publication of "West's Gas", their British Company's monthly magazine, has been suspended for reasons that will readily be understood.

This monthly has a wide circulation in this country and Canada and the special Summer Numbers published each year have been devoted to particular problems confronting the industry. They have been in big demand, some issues finding their place on engineers' bookshelves as works of reference.

When happier days prevail in Europe we shall see publication resumed.

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For Sound Values and Continuous Operating Economy. Meters for Domestic and Industrial Use, All Sizes 5B to 60C.

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Diaphragms—Service Cleaners
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Book Reviews

Standard Chemical and Technical Dictionary by H. Bennett. The Chemical Publishing Company, Inc., New York, N. Y., 1939. 680 pages. Price $10.00.

This condensed technical word book for students, writers, technicians, engineers, scientists, and all others who need assistance in keeping up with the many new chemical, physical, mathematical, engineering and technical words of expression contains over 25,000 definitions. It is a compilation covering industrial products, chemicals and trade names, abbreviations and contractions, as well as the symbols used in mathematics, chemistry, thermodynamics, pharmacy, etc. A special section is devoted to the explanation and the proper naming of the organic compounds. The rules for the nomenclature of the organic compounds are stated clearly. The prefix names of the organic radicals supplements this.

The dictionary should be of especial value to the organic chemist.

Applied Economics for Engineers, by Bernard Lester. John Wiley and Sons, Inc., New York, N. Y., 1939. 464 pages. Price $4.00.

"Research is necessary, both as to material things and markets, and also as to methods of accomplishment.

"Design—whether it be a machine, bridge, transmission system, or determining the kind of service to be rendered.

"Production, or the preparation, fabrication, and furnishing of the goods or services to be rendered.

"Purchasing—the buying of products or required services.

In this book the author has aimed to provide the engineering student or recent graduate with an introduction to the practical aspects of economics, basing this upon conditions and problems which he is likely to encounter in actual practice. Not only has he succeeded in doing this, but in his effort to give the subject a clear and comprehensive coverage he has also provided the older executive with a valuable reference work.

The author points out that when a company is engaged in furnishing a product or a service, its engineering employees are generally faced with the following five types of duties or problems involving economic considerations.

"Financing is required, and financial operations are necessary and important.

"Distribution—gaining an acceptance for the product or service, and getting it into the purchaser's hands.

"Collection, or the obtaining of currency for the product or service rendered.

"Maintenance of that which has been furnished to purchasers.

"Employee relationships—attending to those personal matters between company and employee."

The author covers all of these subjects in a clear and practical way. He concludes with a series of actual case studies in which the principles outlined in the book are clearly illustrated. The older engineer will almost surely recognize among these some problems very similar to ones which he has had to solve in his actual practice.

Engineering reports, holding companies, depreciation, budgets, wage systems, markets and pricing are a few of the varied subjects noted in a random inspection of the book; and these subjects are handled in a definite, practical way which should enable the engineer to make specific use of the author's suggestions.

We feel that the author has made a valuable contribution to the literature on the subject he has covered.

Steam, Air and Gas Power, Third Edition, by William H. Severns and Howard E. Degler. John Wiley and Sons, Inc., New York, N. Y., 1939. 511 pages. Price $4.00.

This is an up-to-date text and reference book covering thermodynamics and the generation of power by steam boilers and engines or by internal combustion engines.

Particular attention has been given to the recent advances in steam-generating equipment, and to the current developments in steam turbines and internal-combustion engines. The underlying theory of construction, application and performance of modern heat power plants and their correlated equipment has been described and illustrated.

The coverage of this book is wide; and the authors have necessarily limited themselves to essentials. Theory has been thoroughly explained but descriptions of specific apparatus has generally been confined to the important features.

The contents include: Principles of Thermodynamics; Heat Power Plants; Steam and Steam Calorimetry; Steam Fuels and Combustion; Steam Generators or Boilers; Steam Generator Auxiliaries; Feedwater Treatment and Feedwater Heaters; Draft Apparatus, Chimneys and Fans; Reciprocating Steam Engines; Steam Engine Power and Economy; Steam Turbines; Steam-Condensing Equipment; Pumps; Compressed Air; Internal-Combustion Engines.

Consolidated Edison Co. Among Leaders in Direct Mail Advertising

For the sixth consecutive year Consolidated Edison Company of New York has been selected as one of the "fifty leaders of the year in direct mail advertising." Each year the Direct Mail Advertising Association conducts a contest among all direct mail advertisers of the country, the selection of the fifty best being based on general excellence of the entries.

Only two other companies have achieved the distinction of being selected every year from 1934 to 1939 inclusive. They are Servel, manufacturers of Electrolux refrigerators, and the Iron Fireman.

Semet-Solvay Light Oil Still for Youngstown

Commenting on the recently announced start-up of the Briar Hill Coke Plant of the Youngstown Sheet and Tube Company, officials of the company state that arrangements have been completed to install a Semet-Solvay light oil stripping still equipped with the latest improvement for the continuous removal of crude residue from the light oil.

Obituary

NORMAN L. HOFF

Suffering for some time from heart ailment which resulted from an attack of typhoid fever, Norman L. Hoff, gas engineer of Southern California Gas Company, died October 19, at the home of his brother, Dr. Cecil Hoff, in San Bernardino, California, where he was undergoing treatment. He was 34 years old at the time of his death.

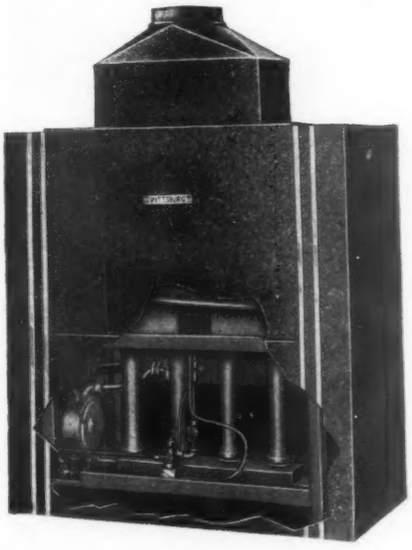
Hoff entered the employ of the former Los Angeles Gas and Electric Company in 1925, and rose through successive posts in the distribution department of that company to the position of gas engineer. He continued in this capacity when the Los Angeles company was merged with Southern California Gas Company. He was extremely active in affairs of the Pacific Coast Gas association, serving on any number of technical committees, and making a number of important technical contributions in the field of gas distribution.

New Equipment and Appliances

Pittsburg House Heater

A novel and economic house heating unit is announced by Pittsburg Water Heater Corporation of Pittsburgh, Pa.

Its operation is based on the rapid circulation of a small volume of water in short cycles of 5 or 6 minutes with the claim that radiators can be brought up to desired temperature in that length of time.



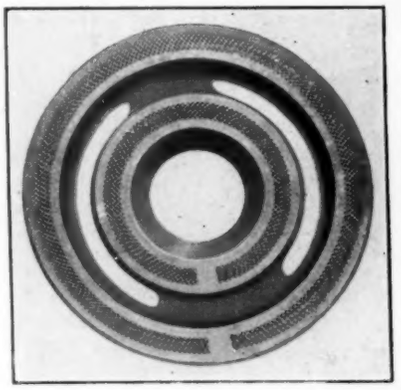
The system is provided with thermostatic control and shut-off safety pilot. Units are housed in a streamlined casing with crystalline finish topped by a neat draft hood. It occupies 25½"x10¾" floor space with a height of about 47 inches. Weight 166 pounds.

Descriptive bulletin offers methods of figuring heat losses and radiation required for various localities north and south. Copies sent on request.

Carrier Gas Fired Unit

A new gas fired home air conditioner for the low cost new home is offered by Carrier Corporation, Syracuse, N. Y.

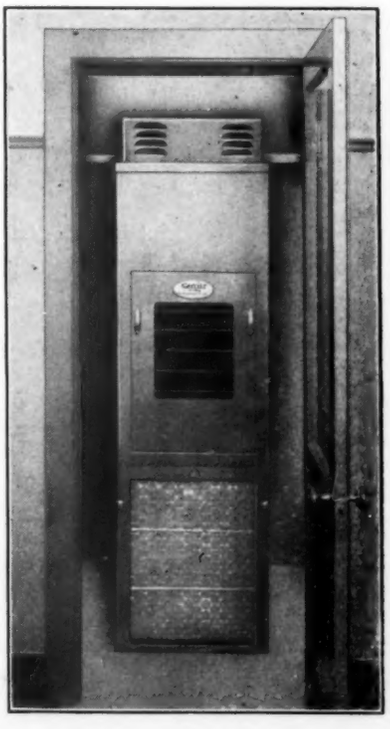
One of the features of this unit is the Carrier ribbon flame gas burner, so constructed as to provide maximum usefulness in burning gas. "Pop-on" and "pop-off" during stopping and starting is prevented by a series of tiny, sieve like openings on the burner.



Carrier Burner

The price range for the new unit will range from $295 to a little more than $500, depending upon the amount of ductwork and installation work required.

The Weathermaker is completely factory assembled with internal wiring for automatic controls. Occupying less than five square feet of floor space, it can be placed in an unused closet, a corner of the first floor or in a basement play room.



Carrier Weathermaker

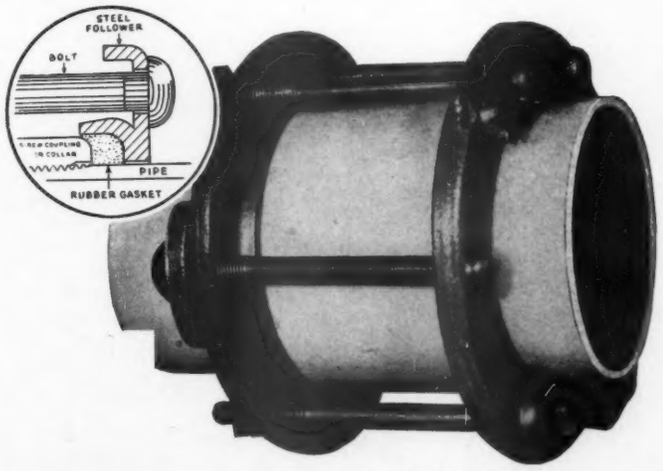
Clamp Repairs Collar Leaks

For quickly stopping leaks through the threads of screw collars (screw couplings), Dresser Manufacturing Company, is offering its style 41 repair clamp in sizes from 4½" to 12" ID inclusive. A smaller clamp of the same design, but with malleable followers instead of steel, is known as style 4, and comes in sizes ¾" to 4" ID inclusive.

According to the makers, the collar clamp consists of a few, simple parts which are quickly assembled with only one tool,—a wrench.

Advantages claimed for the collar clamp are simplicity, speed, efficiency, and permanent tightness

The makers state that unskilled labor can easily apply the clamp without interruption of the service, under all normal pressures, and that the clamp can be furnished for any collar—old or new. Descriptive literature is available from the Dresser home office at Bradford, Pa.



Dresser Collar Leak Clamp, Style 41. Parts are of sectional construction. Generous gasket section gives ample pack.

A Complete and Authoritative Treatise on this Vital Subject—

PIPE CORROSION and COATINGS

by

Erick Larson

Past Chairman of American Gas Association Distribution Committee; Author of articles on High Pressure Distribution and Regulator Structures.

Written in plain understandable language for practical men

Fully illustrated with many diagrams, charts, and photos. A general outline of the subjects covered is given in the chapter titles.

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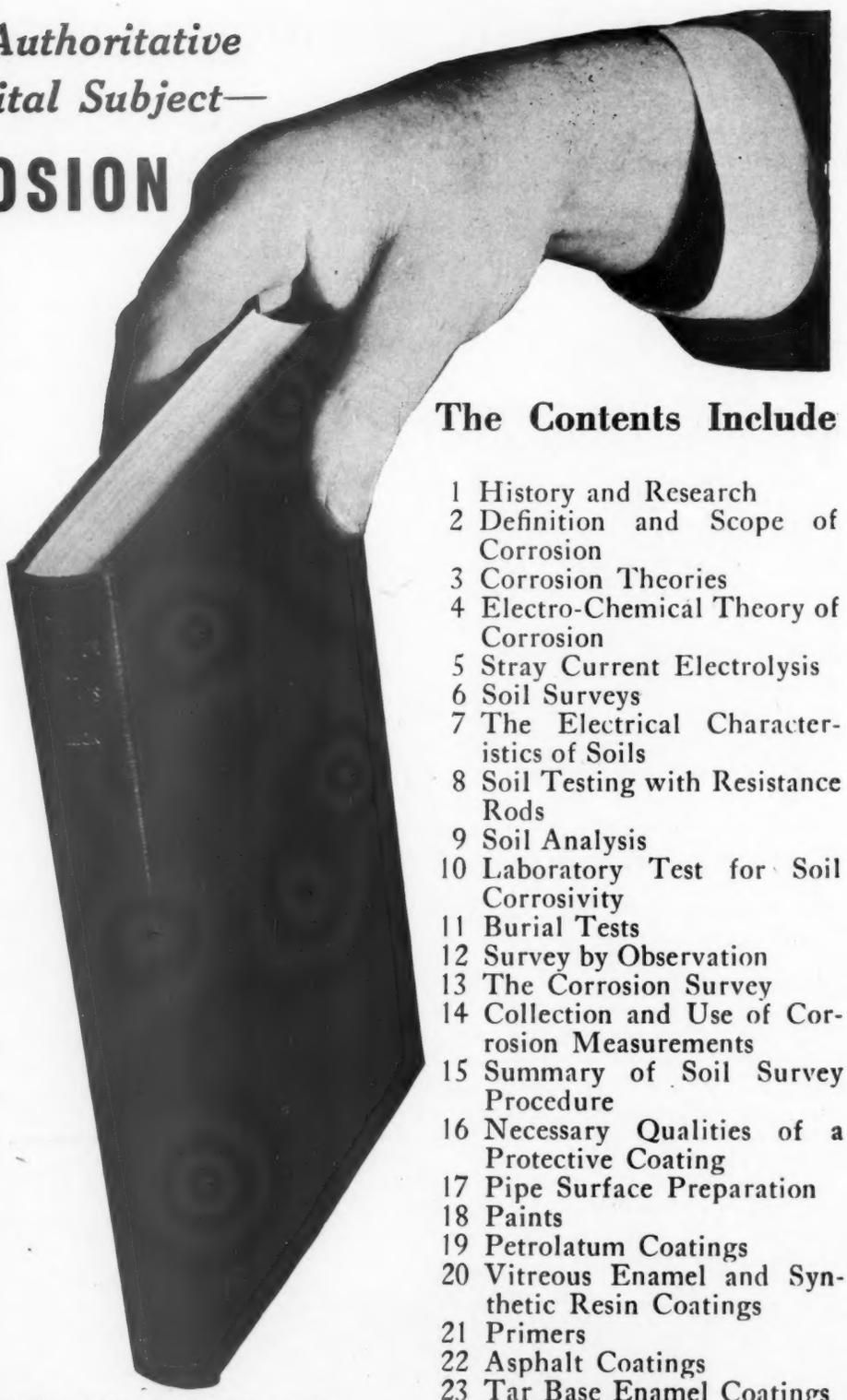

The Contents Include

1 History and Research
2 Definition and Scope of Corrosion
3 Corrosion Theories
4 Electro-Chemical Theory of Corrosion
5 Stray Current Electrolysis
6 Soil Surveys
7 The Electrical Characteristics of Soils
8 Soil Testing with Resistance Rods
9 Soil Analysis
10 Laboratory Test for Soil Corrosivity
11 Burial Tests
12 Survey by Observation
13 The Corrosion Survey
14 Collection and Use of Corrosion Measurements
15 Summary of Soil Survey Procedure
16 Necessary Qualities of a Protective Coating
17 Pipe Surface Preparation
18 Paints
19 Petrolatum Coatings
20 Vitreous Enamel and Synthetic Resin Coatings
21 Primers
22 Asphalt Coatings
23 Tar Base Enamel Coatings
24 Practical Considerations in Application of Primers, Coatings &c.
25 Pipe Coating Fillers
26 Pipe Coating Shields
27 Cement Coatings
28 Cathodic Protection.

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News of the Gas Industry

Annual Convention
Empire State Gas and Electric Association
Westchester Country Club, October 19-20, 1939

Over two hundred executives and department heads of various gas and electric utilities met at the thirty-fourth annual convention of the Empire State Gas and Electric Association at the Westchester Country Club on October 19th and 20th.

Edward P. Prezzano, President of the Westchester Lighting Company, who a few weeks before at a meeting of the Executive Committee had been re-elected the Association's President, presided at the first session.

At the same meeting of the Executive Committee, Irving K. Peck, President of the Binghamton Gas Works was re-elected Vice President, and he presided at the second business session.

Herbert C. Davidson, Vice President of the Consolidated Edison Company of New York, was re-elected Treasurer.

Mr. Prezzano opened the convention with a splendid address in which he indicated the value of association activities and the fruits of cooperative effort.

Conrad N. Lauer, retiring President of the American Gas Association, delivered an inspiring talk on the gas industry's future and spoke of the contribution to that industry and to the management of the American Gas Association made by men from the Empire State.

Hall M. Henry, Assistant to the President of the New England Gas and Electric Association, spoke on Increasing the Gas Net Revenue, in which he indicated that not only operating economy but predominantly sales effort was the key to success. With illustrated charts he emphasized the various steps in increasing revenue.

Davis M. DeBard, Vice President of the Stone & Webster Service Corporation, spoke on Load Building, in which he emphasized the importance of market analysis and the necessity of the gas and electric industries getting a just share of consumer income.

Charles W. Kellogg, President, Edison Electric Institute, spoke on electric utility finances, an important and timely subject in view of the present business pick-up with a falling bond market and a greater interest in common stocks. He reviewed the history and present financial structures of the electric utility industry.

Herbert C. Davidson, Vice President of the Consolidated Edison Company of New York, spoke on recent developments in accounting regulation. He commented upon the great good to be had by cooperative effort, both state and national, in ironing out the points of controversy before regulatory orders are finally imposed.

Clarence L. Law, Vice President, Consolidated Edison Company of N. Y., was General Chairman of the Convention.

Afternoons were devoted to golf for the men, with bridge and motor trips for the women. Many of those present visited the World's Fair.

On Thursday evening the entire convention went to the New York World's Fair where a dinner and entertainment were held.

Group Plan for Life Insurance and Hospitalization Adopted by Washington Gas Light Co.

The Washington Gas Light Company, of Washington, D. C., whose group program adopted in 1931 provides approximately 1,600 workers with more than $3,600,000 life insurance, supplemented by sickness and accident benefits, has expanded the plan to include benefits payable in case of hospitalization and surgical operations. Announcement of the additional coverage was made by Marcy L. Sperry, president of the company.

A special feature of the new arrangement is a provision which enables employees to have hospitalization benefits extended to certain classes of dependents.

The group plan is being underwritten by the Metropolitan Life Insurance Company on a cooperaitve basis whereby the employer and employees share the cost.

As now constructed, the group plan includes life insurance ranging from $1,500 to $3,000, with amounts ranging from $7.50 a week to $25 a week payable in case of sickness or non-occupational injury. For hospital confinement, $4 a day or $5 a day will be paid to an employee for a period not to exceed 31 days, while hospitalization benefits for a dependent will be a flat $3 a day for a similar maximum period. Allowances for personal surgical operations range up to $150.

The plan includes visiting nurse care for insured employees and the periodical distribution of pamphlets on health conservation and disease prevention.

In his announcement of the additional coverage, President Sperry said that the payment of more than $277,000 in claims since the original group plan became effective not only demonstrates its value to employees, but influenced the workers in urging the inclusion of the hospitalization and surgical operation benefits.

Gas Meters Association Meeting

The Gas Meters Association of Florida and South Georgia held a one day meeting Sept. 22 at Winter Haven, Fla.

There was a commercial section meeting in charge of Mr. John Mooney, representative of the Standard Gas Equipment Corporation in Florida, who demonstrated restaurant and hotel cooking, deep fat frying, and roasting in all of its phases. This meeting was strictly for commercial gas salesmen.

Residential salesmen attended the general Sales Conference.

Morning Session:

1. Water Heaters—C. D. Littlefield, Sales Mgr., Peoples Water & Gas Company, Miami Beach, Florida.
2. The Servel Gas Refrigerator—W. A. Mahoney, Dist. Sales Mgr., Servel, Inc.

Afternoon Session:

3. Space Heating—L. F. Rosenberger, Eastern Sales Supervisor, The Coleman Lamp and Stove Company.
4. Gas Ranges—L. C. Ginn, Promotional Mgr., American Stove Company.

One of the outstanding features of the program was a written sales presentation on the following subjects: Gas Ranges, Water Heaters, Refrigerators, and Commercial Equipment. These papers proved to be the most interesting and prizes were awarded to the best papers in each section.

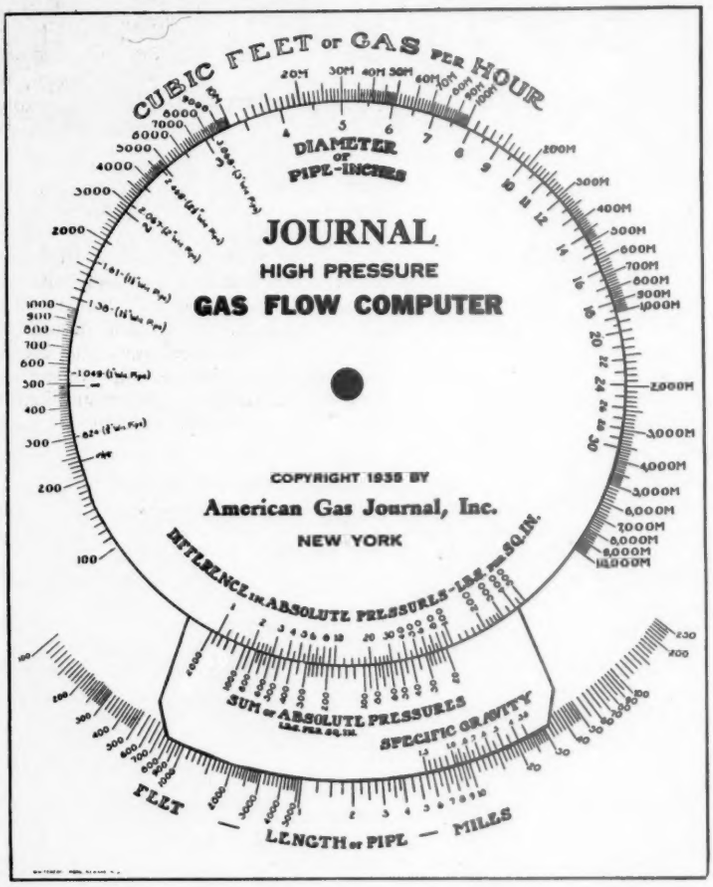
There were one hundred gas appliance salesmen present at this meeting representing nineteen gas companies in Florida and one in Georgia.

Pennsylvania Natural Gas Men's Association Meeting

The first dinner meeting of Pennsylvania Natural Gas Men's Association for the current season was held October 31st at the Pittsburgh Athletic Association.

E. M. Tharp, Vice President and General Manager of Ohio Fuel Gas Company, Columbus, Ohio, spoke on "Our Own Relativities," giving a short resume of the symposium on public relations which was discussed at the annual convention of the A. G. A. in New York.

"Journal" Gas Flow Computers



New Improved Gas Flow Computers now available of durable celluloid, encased in a convenient leatherette cover with complete instructions.

Actual Size 6¼ x 7½

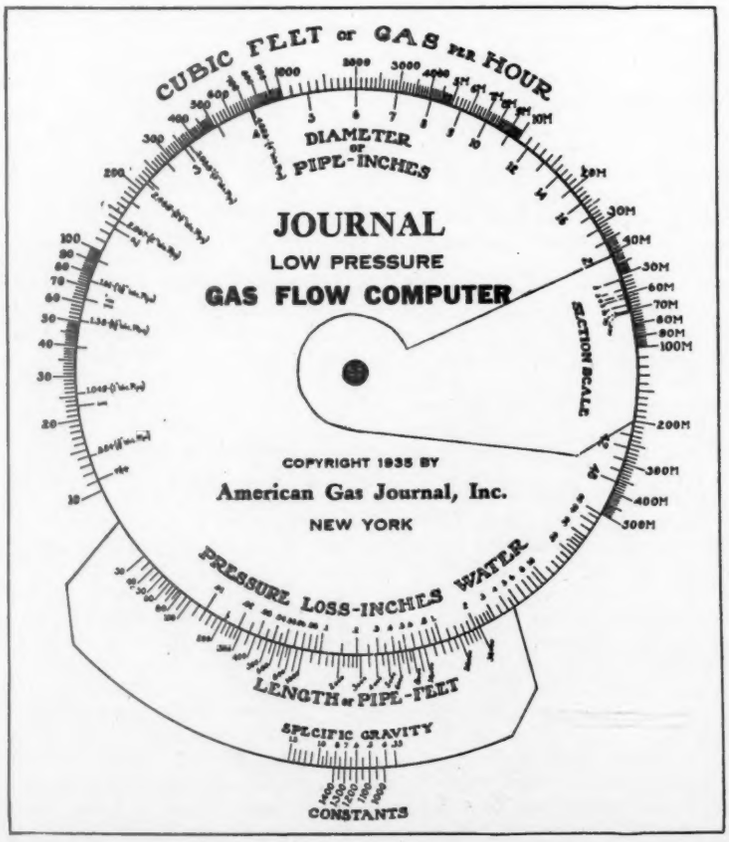
High Pressure Computer Range:

Cu. Ft. of Gas Per Hour—100-10,000 M
Diameter of Pipe Inches ¾-30
Difference in Absolute Pressure—Lbs. per sq. in. 1-500
Sum of Absolute Pressures—Lbs. per sq. in 2000-20
Specific Gravity 1.5-.35
Length of Pipe—Feet 100-5000
Length of Pipe—Miles 1-250

Low Pressure Computer Range:

Cu. Ft. of Gas Per Hour—10 to 500 M
Pipe Diameter ¾" to 48" (including standard and actual weight up to 4")
Pressure Loss Inches .01-10.
Length of Pipe—Feet 30-30,000
Specific Gravity 1.5-.35
Constants 1400-1000

Price $3.50 Each, Postage Prepaid



AMERICAN GAS JOURNAL
53 Park Place, New York

Please enter our order for Computers as follows at $3.50 each, postage prepaid

....HIGH Pressure Computer

....LOW Pressure Computer

NAME .....

ADDRESS .....

"Restaurant Water Should be 180° F", Theme of Display at A. G. A. Booth at Restaurant Show

"Once again gas appliance displays 'stole' the restaurant show, and were greatly predominant," reports Tom Gallagher, Commercial Sales Department Manager for The Peoples Gas Light and Coke Company, Chicago, referring to the gas industry's participation in the Twenty-first Annual National Restaurant Exposition which was held at Chicago's Furniture Mart, October 2 to 6.

Says Tom, "The show surpassed all previous events of its kind, both in number of exhibitors, attendance, and 'buying interest' evidenced. There were forty-two booths showing or utilizing modern gas units adaptable to various restaurant operations (at least triple the number which could be claimed by any competitive interest) including effective individual displays by almost all of the leading producers of gas-fired commercial cooking equipment. Centrally predominant was the A. G. A. Industrial Gas Section's booth featuring the latest in water heating and sterilizing equipment for public eating places." The theme of the display was graphically presented "in one look" by an effectively-decorated side-wall whereon germs in colorful caricature gasped and died under a flood of searing water.

The A. G. A. display was used daily from 11 to 11:30 a.m. as the "studio" for the exposition's daily radio broadcast, "Peekers in the Pantry." During this daily broadcast over station WCFL, "Bob" Purcell and "Phil" Libby interviewed widely-known restaurant people such as Frank J. Wiffler, Secretary of the National Restaurant Association, and leading restaurateurs from all sections of the country. The benefits of gas service, merchandised with such showmanship, could not have failed to impress the crowds.

But if dramatics drew the crowds at the A. G. A. booth, facts and figures held them. The Industrial Gas Section's two-color folder distributed at the booth wasted no words in proving that "Hot Water for Restaurants and Hotels Should Be 180°." The following five salient points were emphasized, both by the literature and the booth:

1. There is no comparable substitute for gas, nor any superior process for the job of heating large volumes of water or increasing 140° water to 180° temperature.
2. Water at 180° guarantees complete cleaning.
3. Water at 180° guarantees complete sterilization.
4. Water at 180° dries utensils from their own heat.
5. Water at 180° cuts down the need of toweling.

In summary, Tom Gallagher concludes, "Without a doubt, this year's show was a 'standout' and I believe represented quite a job in the furtherance of gas appliances and gas fuel ot the restaurant industry."

INDUSTRIAL GAS BOILERS
GARMENT PRESS BOILERS
100 lbs. ASME Code
¾ to 45 H.P.

P. M. LATTNER MFG. CO.
MAIN OFFICE
CEDAR RAPIDS, IOWA

Tentative A. G. A. Laboratory Requirements for Additional Furnace Controls Now Available

In view of the growing importance of furnace temperature limit controls, fan controls, and similar accessories the decision was reached some time ago to prepare listing requirements covering such devices. At a meeting held some months ago, general agreement was reached on the various constructional details which should be included in the standards undergoing preparation. It was, however, realized that laboratory study would be required to obtain further data on the performance characteristics of such equipment. The Laboratories were accordingly requested to undertake the necessary investigation so that suitable performance standards might be prepared.

At a meeting held on September 13th the results of a detailed investigation of contemporary types of such equipment were thoroughly reviewed by the subcommittee and suggested performance standards covering temperature limit controls were approved with minor changes. These included suitable tests for dial calibration, sensitivity under extreme conditions of air velocity and rate of air temperature rise as well as continued operation tests to insure that the controls are capable of satisfactory performance over a prolonged period of service. Distribution of tentative requirements covering such equipment to the industry for criticism was approved by the subcommittee.

Booklet on Gas Home Heating

San Diego Consolidated Gas & Electric Company has issued a 36-page booklet as a valuable aid to their salesmen and cooperating dealers in furthering the promotion of small home heating by gas, featuring the application of floor furnaces and circulating heaters.

Many examples, illustrating the homes, give actual costs as the result of an extended survey of gas used throughout the entire year. Graphs show a breakdown of what proportion was used for heating purposes during the seven or eight cooler months.

The booklet has been given the symbolic title of "Q. E. D."

Attention is drawn to the fact that there are over 8000 floor furnaces in use in San Diego.

Ruthenburg Director of A.G.A.

Louis Ruthenburg, president of Servel, Inc., has been elected a director of the American Gas Association.

Mr. Ruthenburg has been president of Servel, Inc., since 1934, previous to which he was president of Copeland Products, Inc.

During the period from 1922 to 1929, Mr. Ruthenburg was general manager of the Yellow Sleeve Valve Engine Works, East Moline, Ill., and vice-president and general manager of the General Motors Truck Corp. From 1912 to 1922 he was identified with the Dayton Engineering Laboratories Co., Dayton, Ohio, as chief inspector, general superintendent and member of the executive committee, and with the General Motors Research Laboratories as manager of its manufacturing division.

Wolfram V.P. of Porcelain Enamel and Mfg. Co.

The Porcelain Enamel and Manufacturing Co. has announced the appointment of Mr. Harold G. Wolfram as Vice President.

In his new position he will have charge of all engineering and technical activities of the Company.

It was also announced that Walter B. Wessels, formerly Assistant Treasurer, has been appointed Secretary of the Company.

Mondey Joins Appalachian Coals

Harlow B. Mondey, prominently identified with coal sales work since 1921, has joined the Marketing Division staff of Appalachian Coals, Inc., pioneer regional marketing agency of the coal industry. His headquarters will be in the General Office of the agency in Cincinnati, O.

Gas Water Heater Sales Film Breaks Down Resistance of Skeptical Plumber

Offering plumbers and gas utilities salesmen some new "clinchers" in the promotion of high grade water heaters, "Turn on the Heat," an entertaining sales film produced with Hollywood talent for the General Water Heater Corporation, complete with sound and musical theme, has recently been released, according to R. H. Hinckley, sales manager.

Scene from the film in Sales Manager's Office.

"The finished picture running for approximately thirty minutes," Mr. Hinckley said, "will be available for dealer showings from Pacific Coast area as far east as Ohio in the North and the Atlantic Coast in the South. We believe that it will be of stimulating value to both plumbers and utility salesmen. It suggests to dealers increased profits through promotion of better grade heaters and satisfaction to consumers through more hot water, longer life of the heater, and lower gas bills."

Directing the film was Gunther von Fritsch, former director of "March of Time" and the famous Pete Smith "Shorts." Principals are Ed Cassidy, Don Brody, who plays the part of a skeptical plumber, and Rush Hughes, playing the part of the sales manager. It is Hughes, acting in the capacity of sales manager, who offers the convincing arguments which eventually win Brody over as a new water heater dealer.

M. Hawley Mertz, of the Crippen-Crosby, Inc., advertising agency, supervised the production.

Information regarding the showing of this educational film may be obtained from the General Water Heater Corporation, Burbank, California.

Servel Inc. Holds Sales Meeting

1940 Campaign Based on Facts

The annual sales convention of Servel, Inc., manufacturers of Servel Electrolux refrigerators, with 150 company executives and sales representatives in attendance at a two-day meeting, had a unique opening on Oct. 6th with talking films playing a prominent role in the proceedings.

While the general sessions were held at the Hotel Roosevelt, the convention opened at the Plaza Theatre, 42 East 58th Street, where the company sales representatives and the press saw a preview of a film presenting the new refrigerator models as well as the company's selling, advertising and promotional plans for the 1940 product.

Instead of the presentation of the sales, advertising and promotional plans in speech form, executives and heads of departments deviated from the usual sales meeting procedure, telling their story pictorially in the film in which Servel officials and department heads are in the cast. Lowell Thomas, noted news commentator, appeared in the film as the narrator.

This and another screen production, "Symbols of Silence," showed how refrigerators are made at the Evansville factory. It will be used later in the field to introduce the new models and the selling and advertising plans to gas utility accounts, distributors and dealers through which the company's product is marketed.

Appearing first on the screen before the sales representatives from all sections of the country was George S. Jones, Jr., vice-president and general sales manager of the company, who was seen introducing Louis Ruthenburg, president, who thereupon greeted the audience. Other officials and department heads appearing in the film were: Charles G. Groff, chairman of the board; H. A. Strong, executive vice-president; Elon Ekman, member of the board; George L. Roach, assistant to the president; F. E. Sellman, vice-president; Dr. William R. Hainsworth, vice-president in charge of engineering; William Reynolds, advertising manager; H. S. Boyle, sales promotion manager, and others.

Screened in the role of a newspaper reporter, Lowell Thomas appeared in a series of scenes with the heads of three departments of Servel,—selling, advertising and promotion.

The 1940 advertising program was disclosed by Mr. Thomas in a scene set in the office of Mr. Reynolds, who begins the conversation by saying that his advertising "had been designed with one uppermost thought in mind, namely to get behind the local sales efforts of the salesmen in the field." In a running talk the narrator described the entire advertising set-up of the company, such as will appear in leading national magazines, trade papers and local newspapers.

The manner in which Servel advertising is handled in the company's agency, Batten, Barton, Durstine and Osborn, was shown in several scenes where copy-writers and other experts are working on advertising copy based on national surveys pertaining to the nation's refrigerator market.

Final scenes in the film deal with the promotional campaign for 1940 as discussed in the office of Mr. Boyle, who tells Mr. Thomas that the sales slogan for next year will be "life begins in '40 for the retail salesman."

It was brought out at this meeting that in the matter of plant capacity Servel turns out a refrigerator every 40 seconds and in their fabrication handles 70 tons of sheet metal a day.

Midget Servel Demonstration Unit

A small apparatus weighing less than seven pounds, that can be carried into the home to illustrate the principle of the freezing system of the Servel Electrolux refrigerator, has been developed in the Servel laboratories for use by members of the sales forces of the gas utilities and other dealer accounts of Servel, Inc. The device, known as the Servel Midget Absorption Unit, is being employed successfully in a number of cities.

An announcement regarding the "unit" states:

"The Midget Absorption Unit offers an effective demonstration of the principle of absorption refrigeration. It is not an exact miniature of the Servel unit, but is a special piece of demonstrating equipment to show how cold can be produced from heat, and is operated with a small flame from an alcohol burner."

The midget unit is intended not only for carrying on demonstrations in the home of the individual prospect, but in group demonstrations, as part of the display in windows, or on the floor of gas companies, or other outlets, and in physics and chemistry classes in schools and colleges.

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Oil Gas Plants—"Refractory Screen" Process for Base—Standby or Peak Loads — On Existing or New Water Gas Sets—Low or High B.T.U. Gas.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, of American Gas Journal, published monthly at East Stroudsburg, Pa., for October, 1939.

State of New York } ss.
County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared S. G. Krake, who, having been duly sworn according to law, deposes and says that he is the Manager of the American Gas Journal and that the following is, to bthe best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation) etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers are: Publisher, American Gas Journal, Inc., 53 Park Place, New York City; Editor, Alfred I. Phillips, 53 Park Place, New York City; Business Manager, H. T. Matthew, 53 Park Place, New York City.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) S. G. Krake, 53 Park Place, New York City.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom said trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is ———. (This information is required from daily publications only.)

S. G. KRAKE,
Manager

Sworn to and subscribed before me this 5th day of October, 1939.

(Seal) MARY E. KELLEHER.

(My commission expires March 30, 1940.)

Ten Years of Gas Dehydration

(Continued from page 34)

treated. No adverse effects on pipe-joint leakage have been noted by any user.

A system of super-cooling gas by vacuum steam-pump refrigeration has been successful in practice, shows low operating cost, and greatly improved service conditions.

There has been a widespread adoption of partial dehydration by the natural gas industry for treatment of the gas prior to its introduction into transmission mains. In this manner line stoppages from ice or hydrates have been avoided; main corrosion and subsequent dust troubles largely eliminated; and the carrying capacity of the lines increased. Dehydration of natural gas is accomplished by refrigeration, calcium chloride solution, or the combination of the two, and by diethylene glycol. Due to the relatively high pressures of the gas treated, operating costs are quite low, these falling in the range .02 to 0.12 cents per M cubic feet (std. conditions).

Dehydration may be combined with hydrogen sulfide removal with mutual advantages to both processes.

Reality in Accounting

(Continued from page 40)

ful eye upon the situation, observing their own experience and comparing it with that of similar companies. And the reality of the matter is that a company, by its depreciation provisions and maintenance policy combined, either is or is not maintaining the integrity of its investment over the years. It is an important question for management to answer. Your accounting departments will help you to answer this and the other questions discussed in proportion as you require and expect intelligent performance from them.

The place which you have given to this subject in your program is evidence of your appreciation of the importance of accounting problems. It is the duty of all of us, executives and accountants alike, to see to it that the accounts fulfill their purposes in today's conditions, including the purposes of regulation, of management, and of investment.

Catalogs

New Gas Catalog—Fisher Governor Company, of Marshalltown, Iowa, has issued a new catalog for the Gas Industry. According to P. A. Elfers, Sales Manager of the Company, this new catalog, No. 39, is the most complete book of its kind ever issued by Fisher. It illustrates and describes 75 different Regulators, as well as interesting installation photos, flow charts, diagrams and tables. Dimensions, working pressures and prices are all given in detail.

It also contains 24 pages of capacity charts to aid in sizing regulators. Use of these charts often permits smaller regulators to be used thereby effecting substantial savings. Copy on request.

Oilless Bearings—A new catalogue describing Metaline Oilless Bronze Bearings has been issued by the R. W. Rhoades Metaline Company, of Long Island City, N. Y. It presents the history of these bearings, the various types manufactured—standard and special—and shows the flexibility possible in meeting unusual requirements. Tables of sizes and specifications are included, as well as complete instructions for installation. The catalog will be of particular interest to plant maintenance men and machinery designers. Copy will be sent on request.

Compressors. A new line of industrial compressors and vacuum pumps in sizes of from ¾ through 5 h.p. is announced in an illustrated catalog covering the complete line of Ingersoll-Rand Type 30 Compressors. These new compressors, embodying a simplified "Finger Valve" construction, form only one part of the complete range of Type 30 Compressors, which are built in sizes up to 15 horsepower for pressures as high as 1000 pounds. Copies available from Ingersoll-Rand Company, 11 Broadway, New York City, or any branch office.

Liquid Meters. Bulletin 40-B15, Cycloidal Liquid Meters and Motors, covers the Cycloidal Rotary Displacement units built by Roots-Connersville Blower Corporation of Connersville, Indiana. Capacities range from about 20 to 1800 gallons per minute in listed sizes. Still larger volumes may be handled by special sizes.

Nickel Alloy Cast Iron in Gas Plant Equipment. A 16 page bulletin, being a revision of a paper read before New England Gas Assn., in 1936 by J. S. Vanick of the research division of International Nickel Co., 67 Wall St., New York. Applications are shown and characteristics of alloys discussed. Copy sent on request.

Indirect Air Heaters are discussed by Bulletin 74 of Despatch Oven Company of Minneapolis. It outlines briefly the history of indirect air heating, and gives valuable information on the design and construction of the new Despatch Heavy Duty Indirect Air Heater. Copy on request.

Blowers and Exhausters. Bulletin 120-B-11 of Roots-Connersville Blower Corporation of Connersville, Ind., deals with the application of centrifugal blowers and exhausters, their operating characteristics and construction and shows many typical units.

Iron Pipe. Republic Steel has just issued an attractive two-color, 44-page catalog entitled "Toncan Iron Pipe For Tough Service." This is the story of Toncan Copper Molybdenum Iron Pipe and covers such subjects as: the electric weld process of manufacture; rust and corrosion resistance; recommended applications; details of various tests; physical properties; threading procedure; welding; sizes and weights; outstanding installations and service records in specific fields; how to specify and order; where to buy; and other information. Catalog available through Republic Steel Corporation, Advertising Division, Cleveland, Ohio.

Water Heaters. Descriptive sheet pointing out in complete detail the features of their 1939 models of automatic water heaters is issued by Pittsburg Water Heater Corp., Pittsburgh, Pa.

Pressure Regulators. A sixty page catalog No. 40 of Chaplin-Fulton Mfg. Co., gives complete descriptions with many illustrations of their regulators for natural and manufactured gas in dwellings, mills, factories and street mains and for control of steam pressure and gas fuel supply to steam boilers. For copy address Chaplin-Fulton Mfg. Co., 28 Penn Ave., Pittsburgh.

Variable Speed Transmission. Two new sizes of P.I.V. Gear variable speed transmission units are announced by Link-Belt Company, 2045 W. Hunting Park Ave., Philadelphia, and have been included in a new 40-page Book No. 1574, seventh edition. They are No. 0 size, ½-h.p., for speed ratios of 2 to 1 or 3 to 1; and size No. ½, 1½-h.p., for ratios of 2 to 1, 3 to 1, 4 to 1.

These smaller sizes, like the larger units, ranging up to 15-h.p. and up to 6 to 1 speed ratio, can be furnished for horizontal or vertical mounting, motorized or without integral motor, and with or without extra speed reduction gear sets. Copy on request.

Arc Welding. The Harnischfeger Corporation, Milwaukee, announces the completion of a bulletin "The 200-Ampere Multi-Arc Welding Service," a new bulletin which describes completely the design of the new welder recently introduced by P&H. Bulletin W-26, complete with big illustrations and cutaway views, illustrates the compactness of the WA-200, illustrates graphically how its requirements of less than 3½ square feet of floor space may be used to advantage by all users of welding generators.

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